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We cannot refrain from calling to your attention with much feeling of pride the complete plans of the 25-foot V-bottom runabout Dorothy, published on pages 34-36. These plans are the fourth set in the series of twelve which that world-famous designer of V-bottom motor boats, Wm. H. Hand, Jr., of New Bedford, Mass., is designing for you and the other MoToR BoatinG readers. Even if you went to Mr. Hand and had him design a boat for you, he could not possibly turn out a more perfect or satisfactory craft than Dorothy. Mr. Hand is designing for no other publication, and a complete set of one of his new boats designed exclusively for MoToR BoatinG will be published in each issue of 1920. It will be well for you to make provisions in advance for your copies, as no back numbers will be available.

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Photographs by M. Rosenfeld

Springtime Pleasures

Some of the Ways in Which Motor Boatmen Spend Their Spare Time Before the Boats Are Ready for Launching

By F. W. Horenburger

SPRING is here. Visit any of the numerous boat yards or boat clubs anywhere along the coast and you will see unfailing signs of the arrival of a new season. Feverish activity and a tremendous hustling and bustling are taking place. A continuous banter between rival crews as to who is going to win the greatest number of races, or go on the longest cruise, lend additional zest to the day's fun.

With coats off and the trusty old overalls on the boatmen begin in earnest the task of dressing up their ship for a new season. The real genuine amateur is the one who will do all the numerous jobs about his boat himself. Life in the great outdoors begins again and a more healthy occupation for the great army of pencil pushers would be hard to find. In addition to the health to be gained by outdoor work of this kind, is the knowledge of the construction, condition and thousands of other details about the boat which lend interest to the tasks and increase his love for his boat and the sport it represents.

Our experienced motor boatman knows the tasks ahead of him for he has been planning and preparing all through the winter.

He knows that he intends to enlarge this locker, relocate the galley and add a ventilator up forward. Such items as finishing are to him merely incidental and present no difficulties. His tasks are tabulated in proper chronological order and he knows where he will begin and at what rate of progress he must advance in order to be all complete by the time the club goes into commission and the season opens in earnest. The experienced yachtsman also prepares a list of jobs for the rainy day. Every Sunday is not going to be bright and clear and many of these numerous indoor jobs can be completed and no time lost as these can be done while it rains just as effectively as when the sun shines. Among

these can be mentioned the overhauling of the mooring tackle, work on the motor or electrical equipment, plumbing might need repairs or many other indoor details can be looked into. No days should be wasted; if the weather fails, work on the indoor schedule.

Do not be too hasty in removing the winter protection of canvas, tar paper, or other covering. There are still prospects for a stray snowstorm or bad weather ahead. The hot sun shining on the south side while the north side is still covered with snow and ice is not apt to do the boat any good. In fact, there are more possibilities for harm by premature removal of protection than the boat will suffer all through the cold weather. If the hull is not accessible enough with the cover on, it should be removed only temporarily and snugly replaced in the evening.

In covering the boat it would be well to provide for ventilation, as humidity will soon cause a condensation on all metal or brightly finished parts of the covered boat with harmful results. Ventilation to be effective must provide for both inlet and outlet openings. Air cannot flow through the interior unless there are two openings. A tank full of gasoline will not hold any more. In the same way a boat full of air will hold no more unless another opening is provided to allow a flow through between the vents.

This accumulation of moisture or sweating as it is commonly called may not do any particular injury. Certain it is, however, that all bright work will be harmed by this treatment. Woodwork will swell and doors and lockers warp out of shape. Should this happen to you, permit them to dry and shrink back to normal before forcing things as corners will chip off and doors be forced out of shape.

Perhaps the most important series of tasks which confront the boatman are the various items of painting and



The big job is applying the topside paint. Long brush strokes, evenly applied, will do the trick



White lead putty, well mixed, is necessary for filling in seams



Blistered paint and many thickness of old paint can best be removed by the careful use of a torch

varnishing. Stories about this have been oft repeated and it is perhaps unnecessary to elaborate on these topics at too great length. It is perhaps a simple thing to read a story on how to do painting, and an entirely different story to actually perform the work. One can learn much more by a few hours' exercise with a brush under the watchful eye of an experienced yachtsman than can be learned from volumes of books on "How to Do It."

Before beginning operations it will be well to take inventory of the tools and materials on hand and ordering whatever is needed to complete the list. Do not count on being able to borrow everything you require from your neighbors. In a busy time like this all tools are in demand and the fellow who borrows continually will soon find himself very unpopular.

Good tools may cost a few dollars but they will last indefinitely if given even ordinary care and attention. Brushes should come in for particular attention. Soak all your old brushes in turpentine for a week or two and then boil them out in a soda solution. The results of this treatment will surprise you.

In general, all painting and varnishing is susceptible to the same treatment. Work to be painted should be very thoroughly cleaned and dried before new paint is applied. A soap solution and fresh water are excellent for the cleaning. Steel, wool, and sandpaper are the best things there are to smooth down and prepare surfaces to be repainted. Sandpaper works easiest when applied by means of a rectangular cork block 3x4 inches or thereabouts, and final finishing should be done by fine sandpaper, coarser grades being reserved for heavier, rougher work.

Paints and varnishes are intended for a dual purpose. Their principal and least apparent usefulness consist in protecting painted materials from moisture and decay. Their apparent and perhaps less essential purpose is to please the eye.

Boats, of course, must employ this eye-pleasing characteristic more than any of its other features. Varnish accomplishes its work in a slightly different direction from paint. Expensive woods whose beauty lies in their exquisite grain must be protected with varnish. The clearer and finer this is, just so much more will these woods show their beauty.

Paints on the contrary will trim

Fill in all seams in the deck in order to keep it tight throughout the season



are good, others are better, and in the exacting service such as is required of a varnish on the water the very best to be secured is none too good. It may be that the high-grade expensive varnishes are considered a luxury; consider for a moment what you are doing. The initial work of preparing the surfaces for varnish is the same no matter what varnish is used.

A grade of varnish which will only last through part of the season and require refinishing once or twice during the season is certainly more troublesome and expensive in the long run as the labor item is the factor that adds to the cost.

There are on the market today high-grade varnishes which are guaranteed to wear through an entire season and others are guaranteed not to turn white under the action of the sea and weather. The first cost of these is then merely a trifle as compared to the necessity of having to refinish again and again with inferior varnishes. It is poor economy to use too little varnish and about as bad to use too much. Every varnish manufacturer will be glad to supply proper instructions as to the use of his product.

Every boatman is urged to take this item up with his choice varnish people and then follow their advice and suggestions.

The care of brushes is an indirect factor in the quality of the work turned out by the amateur painter. An absolutely clean brush is a necessity. After the first coat has been applied the brush should be suspended in raw linseed oil and kept free from dust. When

(Continued on page 140)



One of the first things to do is to open all ports and sun cushions and gear to burn off dampness

up and dress inferior woods. White paint or enamels on the interior trim will look and wear equally well whether applied on oak, mahogany, spruce, or pine. It is customary to paint the topsides of motor boats and yachts in white or perhaps black or gray. Bottoms are protected with some form of special anti-fouling copper paint. Other parts of the hull inside and out are covered with deck paints of suitable shades.

The hull inside and the bilges can be protected by a good grade of red lead paint, or if the red color is objectionable any other desired color can be used; gray is quite popular for this purpose.

Many of the mahogany runabouts and fast launches are finished in bright varnish. In cases like this it is common practice to paint the bottom with varnish into which has been stirred a goodly amount of metallic bronze powder. After this has thoroughly dried it is necessary to slightly rub down the varnish film on the surface in order to expose the metallic ingredients. If this is not done there is no use in adding the bronze powder to the varnish as the varnish might just as well have been applied without the powder so far as its protection against marine growths is concerned.

There are many different grades of marine varnish on the market today. Some



Particular attention should be given to the caulking and paying of seams

Many New World's Records Established

The First Motor Boat Races of the Year Held at Miami, Florida, under American Power-Boat Association Rules Draws the Finest Field of Racing Craft Ever Assembled Together

By Charles F. Chapman

Photographs by M. Rosenfeld

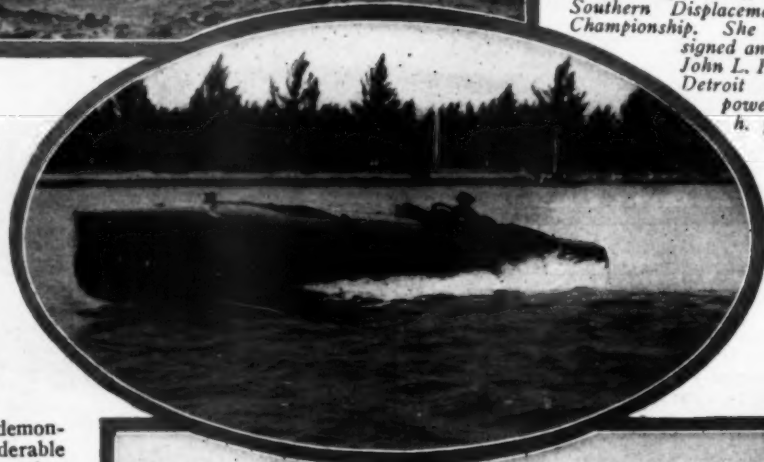


Start of the race for displacement runabouts. In the center will be seen Mauser II, a 45-footer powered with a twelve-cylinder Van Blerck motor. The runabouts on the outside are *We We*, owned by Webb Jay of Chicago, and *N'Everthin*, owned by Wm. Lemp of Detroit. Both of these boats were built by Hacker and are powered with six-cylinder Hall-Scott marine motors

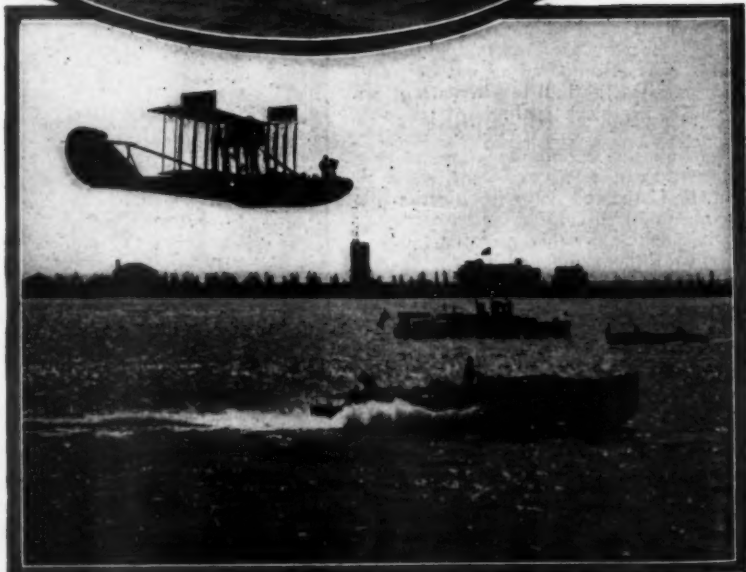
THE forty-mile-an-hour runabout and the thirty-mile cruiser are with us. Both of these craft made their appearance for the first time officially at the races at Miami held last month. Speeds equal to these have been "claimed" several times before by enthusiastic owners, but always they have been careful to keep their speedsters away from actual competition, which, of course, makes their claims absolutely worthless as far as having any official significance is concerned.

This year's southern regatta demonstrated several things of considerable importance not only from the racing standpoint, but also from the viewpoint of progress in design, construction, and seaworthiness of boats and engines. Without doubt the features which should demand the greatest attention is the manner in which the marine motors in the express cruisers stood up and delivered the goods under the severe test to which they were subjected, not once or twice, but every time. No longer should there be any doubt in the minds of any one as to the suitability of the modern marine engine for speed cruisers in which to go off shore under the most severe conditions of weather and sea and give absolute satisfaction and reliability.

Down at Miami they don't believe in running races just for the fun which the sightseers might derive from watching the boats go around a short course at top speed and then heralding the winner of such an event as champion of the world. They don't do things by halves—they believe that a man to own a champion or the fastest express cruiser in the world must prove that he owns a boat that is worthy of such a title. The term cruiser is indicative of something capable of go-



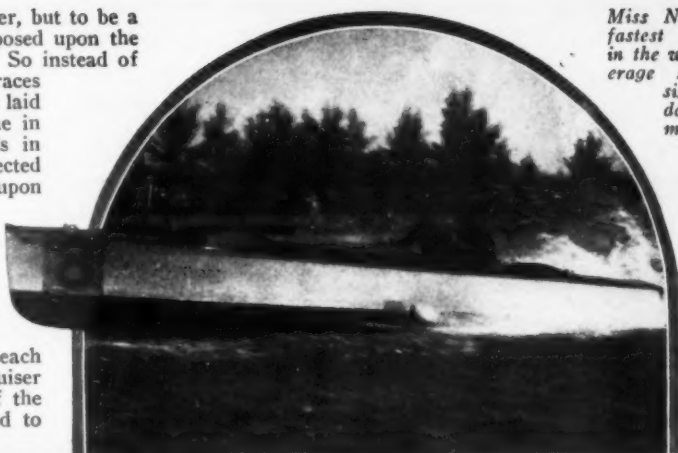
N'Everthin, winner of the Southern Displacement Boat Championship. She was designed and built by John L. Hacker of Detroit and her power is a 200 h. p. Hall-Scott



Shadow V, owned by Carl Fisher, winner of the first series for the cruiser championship, leading a Curtiss flying boat in a two-mile exhibition race. The boat in the background is the *U. S. S. Tarragon* belonging to the Bureau of Navigation of the Department of Commerce

ing to sea under any condition of weather, but to be a speed cruiser, a double obligation is imposed upon the craft which is seeking glory and titles. So instead of scheduling one or possibly two short races for speed cruisers over a circular course laid out in protected waters, as is often done in some parts of the country, the officials in charge of the preliminary plans connected with this winter's Miami races frowned upon such attempts to gain publicity for certain engine and boat manufacturers and said this year they'll have to show us what their motors are made of, for we're going to make the contestants run five races, three of them out in the ocean, out of sight of land, of approximately 115, 150, 160, 20 and 10 miles each respectively, and, furthermore, any cruiser which does not finish in at least one of the long-distance ocean races is not entitled to

Miss Nassau, the fastest runabout in the world. Average speed for six one-mile dashes, 44.3 miles per hour



The committee, Commodore Harry Parsons, of Cleveland; Commodore Charles H. Kotcher, of Detroit, and Charles F. Chapman, of New York, editor of MoToR BOATING. The man in the background wearing racing togs and the broad smile is Commodore Johnston of Cleveland, owner of Miss Nassau. The committee is figuring the speed made by Miss Nassau in the two-mile exhibition and are about to tell her owner that he has just established another world's record of 44.3 miles per hour

We We, another Hacker-built runabout, which averaged 36 miles per hour

start in the ten- and twenty-mile events. The committee did arrange such a schedule, and the races were held, and the result was most interesting and instructive. Summarized, it can be stated that not one of the marine motors (there were only two makes in the boats—Sterlings and Speedways) faltered in the slightest, but came through with 100

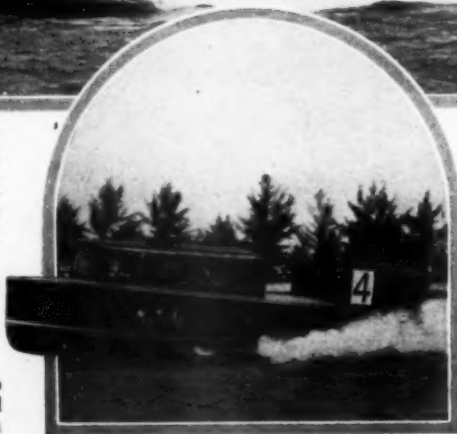
per cent service record, and each of the boats which had been designed and built according to sane and seaworthy ideas were able to finish each event without mishap or danger to crew or any more discomfort than perhaps a little green water coming aboard now and then.

However, the cruiser which was powered with an aviation motor did fail most miserably at sea, and the hull which was built to beat the rule and get away with every technical advantage which is possible under a strict interpretation of the rule was unable to finish several of the events, and the minute she got into a sea of any size her speed was cut down to a very low figure and her factor of safety became an almost negligible item.



Hoosier V, winner of the second series for the cruiser championship and holder of all the long distance express cruiser championships. Her speed in the mile trials was 34.32 miles per hour. Her power is two type G R Sterling motors

But this is not all, for after the first series of five speed-cruiser races, there was some dissatisfaction among the owners of the competing craft due to the fact that two of the boats had run aground, one had struck an obstruction too near the course



Gar, Jr., winner of the mile trials for express cruisers. Speeds 36.6 miles per hour. This boat is owned by G. A. Wood of Detroit, Mich.

and another's motor had been tampered with in two events, so this owner thought. So at the suggestion of the winner of the first series it was decided to run the entire series over again under identically the same conditions except that one day should intervene between events.

Therefore, altogether we had ten races, totalling 910 miles, 850 of

(Continued on page 140)

NEW WORLD'S RECORD AT MIAMI

One Mile (Average of six runs)
One Mile (Average of six runs)
One Mile (Average of six runs)
Two Miles (Circular course)
Two Miles (Circular course)
Two Miles (Circular course)

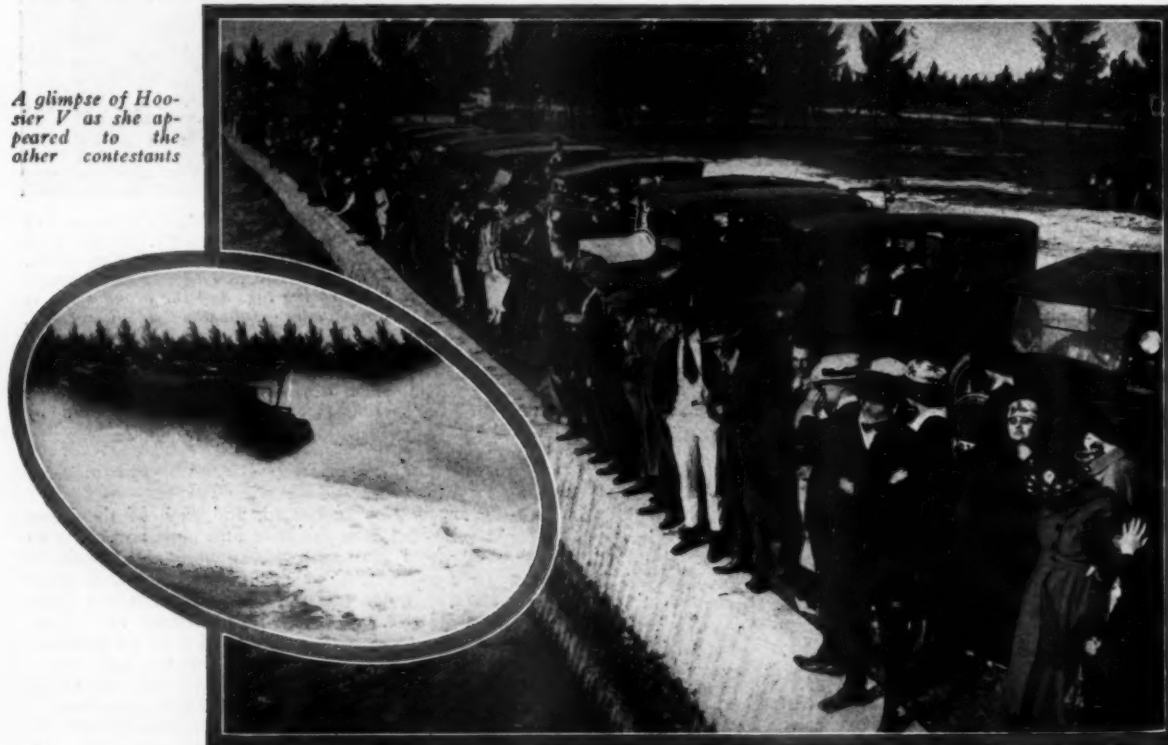
Runabouts
Speed cruisers
Speed cruisers
Runabouts
Runabouts
Speed cruisers

Aviation motors
Marine motors
Aviation motors
Marine motors

Miss Nassau	44.3 m.p.h.
Gar, Jr.	36.6 m.p.h.
Hoosier V	34.32 m.p.h.
Miss Nassau	43.1 m.p.h.
We We	36.0 m.p.h.
Gar, Jr.	34.45 m.p.h.

Long Distance Events for Speed Cruisers: Miami to Bimini and return, 113¹/₂ miles, Hoosier V, 28.7¹/₂ miles per hour; Miami to Key West, 158¹/₂ miles, Hoosier V, 29.92¹/₂ miles per hour. *Speed and distance not guaranteed.

A glimpse of Hoosier V as she appeared to the other contestants



Thousands of persons lined the bulkhead wall around the two-mile course watching the races at Miami

Sea Hornet-1

Spectacular One-Man Torpedo Boat of Low Visibility, Is Fast, Compact and Seaworthy



Torpedo discharge opening at forward end of boat

eight-cylinder $5\frac{3}{4} \times 6$ Van Blerck marine engine of 200 h.p. Its method of attack is to flood the forward compartment and approach its target in an almost invisible condition.

The forward end of the torpedo compartment is provided with a hinged door which is opened from the control station. A little latch on the torpedo is released and presto—the torpedo propelled by its turbines and 2,250 pounds of air pressure leaves the boat at 40 knots speed and shortly reaches its target.

Meanwhile the powerful centrifugal pump on the forward end of the motor shaft pumps the compartment dry

THE war is over. While this is a condition we are all particularly pleased to have brought about there are numerous inventions whose development was terminated coincident with the war. An unusually practical and efficient war machine which forms the subject of our illustrations was just about to be constructed in large quantities when the war was called off and the enemy fleets saved from annihilation.

Numerous inventors were just beginning to get into their stride in earnest and the production of marvelous machines of destruction just commencing when it was all over.

This little one-man torpedo boat is the invention of W. Shearer, and, as our pictures show, is the most complete little T.N.T. conveyor ever devised. It is designed to carry in the forward compartment a standard full-sized 21-inch torpedo loaded with from 300 to 500 pounds of guncotton. It is equipped with a powerful

Sea Hornet-1, the long forward hatch and compartment is designed to carry the regulation 21-inch torpedo



Engine and cockpit hatches opened to show control devices and powerful Van Blerck motor

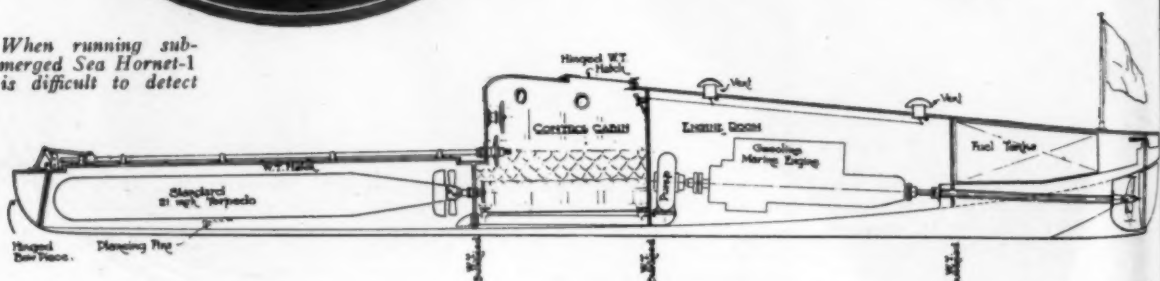


In the submerged condition the boat is directed at the target, the hinged door in the bow opened and the torpedo sent to its goal

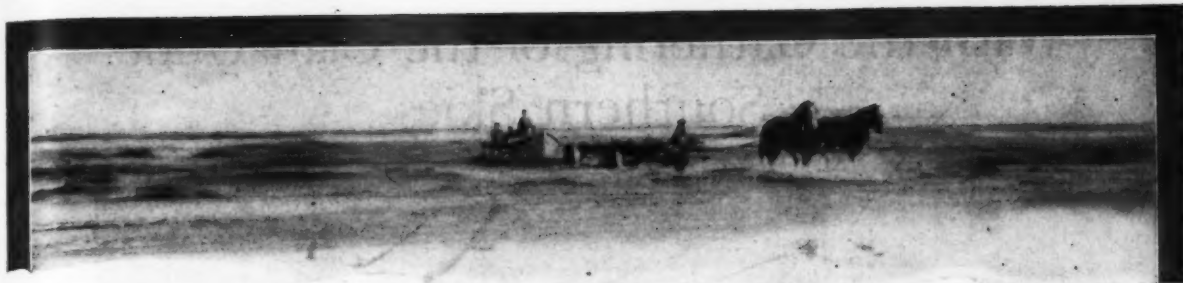
After discharging the torpedo, the powerful pump can empty the forward compartment in forty-five seconds and the boat makes a clean getaway at 28-30 miles per hour



When running submerged Sea Hornet-1 is difficult to detect



Longitudinal inboard section of Sea Hornet-1. Note the large spaces occupied by the torpedo and Van Blerck propelling motor



Surf Landing Simplified

Difficult Feats of Oarsmanship Explained for the Benefit of Motor Boatmen, Who May Find Such Knowledge Useful

By Oscar Lewis

IN the "Bluejacket's Manual," an official handbook of information and instruction for sailors of the United States Navy, are several chapters dealing with the handling of small boats. In the summary at the end of one of these chapters, this question is asked:

"What is the most dangerous duty that a ship's boat is called upon to perform?"

The answer, printed directly below, is, "Landing through a surf."

It is of interest to know why this particular task is given first place among the many dangerous duties that small boats are called upon to do. No one who puts to sea upon any sort of craft is entirely safe from the possibility that some day he may be forced to attempt a landing through a surf in a lifeboat. A knowledge of the methods employed in such cases by the Navy and the Coast Guard Service will be useful.

Probably in no organization in the world is the science of handling small boats in a surf better understood than in

the boat regardless of storm conditions or height of surf.

In its more than forty years of existence the Coast Guard Service, and its predecessor, the old Life-saving Service, have acquired a store of valuable information regarding the proper handling of boats in a surf. The following is a summary of the general rules to be observed in making a landing through a surf, or when rowing to seaward from the shore.

It is, of course, extremely perilous to attempt a landing where there is no beach and the surf breaks directly against a ragged or rocky shoreline. An unbroken beach with a not-too-sudden slope should whenever possible be chosen as a place to make the landing.

The one great danger in running in through a surf is the tendency of the boat to get into a position where her stern is elevated upon the crest of a breaker and her bow depressed in the comparatively motionless water just in advance of it. A boat in this position sometimes will ride out the breaker, but often she is thrown end over end or spun around broad-

side to the surf and capsized.

The reason for this is not difficult to understand. (Continued on page 62)



Frequent drills serve to keep the Coast Guard crews at the maximum efficiency so that they can launch their boats regardless of weather

the United States Coast Guard. The majority of the nearly 300 stations of the Coast Guard face upon the open sea, and the one way of launching the lifeboats is through the surf. Weekly drills are held at these stations during which the boats are launched, pulled out through the line of breakers, and at the end of the drill brought back through the surf again to the beach. These drills are held in all save the heaviest surfs. Under service conditions, that is, when the Coast Guard crew is going to the aid of some vessel in distress, every attempt is made to launch



With the Gathering of the Clan Under Southern Skies

Two famous automobile racing men who are now motor boat racing enthusiasts. Webb Jay, of Chicago, owner of Wee Wee, the Hacker-built, Hall-Scott-powered runabout which did wonderful things at Miami; and Guy W. Vaughan, vice-president and general manager of the Van Blerck Motor Co., who believes a marine motor manufacturer should give real service to his customers and who sees to it that his company does



Photographs by M. Rosenfeld



G. A. Wood, of Detroit, well known to all the world as the owner of the world-champion hydroplanes Miss Detroits. Now Mr. Wood makes his debut on salt water, is enthusiastic about its possibilities and says he has learned things about what a real express cruiser should be in order to go to sea in. Racing on the high seas is some different from on the Detroit River, says Champ Wood

Carl G. Fisher, northern as well as southern sportsman who has done more to interest the yachtsmen of the country in motor boat racing between real craft than any other person. Commodore Fisher owns the express cruiser Shadow which won the southern championship in the first series of five races held at Miami this winter





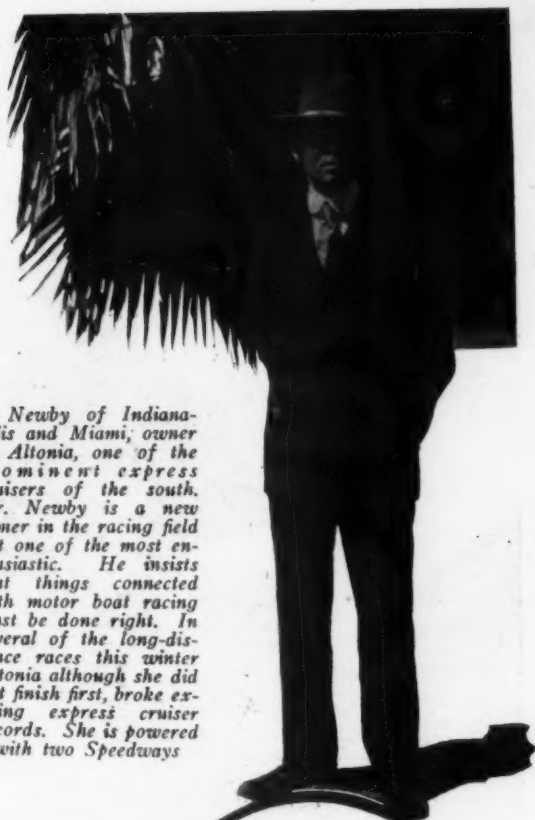
Two well-known figures in the motor boat world, Fred D. Lawley of Boston, and H. R. Duckwall of Indianapolis. Mr. Lawley designed and built *Hoosier V*, owned by Mr. Duckwall. *Hoosier V* is the fastest sea-going express cruiser in the world, having broken several long-distance records this winter. Her latest achievement was to win the ocean race from Miami to Key West, a distance of 160 miles, doing the distance in 5 hours, 16 minutes, 51 seconds

C. B. Johnston of Cleveland, O., owner of the champion runabout *Miss Nassau* which made one mile straightaway at the rate of 44.3 miles per hour, two miles at a speed of 43.1 miles per hour and ten miles at 38.1 miles per hour



Commodore Charles W. Kotcher of Detroit, owner of several fast express cruisers and one of the men chiefly responsible for the success of the Miami races this winter

C. Newby of Indianapolis and Miami, owner of *Altonia*, one of the prominent express cruisers of the south. Mr. Newby is a new comer in the racing field but one of the most enthusiastic. He insists that things connected with motor boat racing must be done right. In several of the long-distance races this winter *Altonia* although she did not finish first, broke existing express cruiser records. She is powered with two *Speedways*



How Is Your Compression?

The High Cost of Gasoline Should Be an Incentive
to Examine the Efficiency of Your Power Plant

By F. W. Horenburger

Photographs by M. Rosenfeld.



MOTOR boatmen who are wise and experienced have been working on their power plant equipment all through the long winter. For them this advice will mean nothing since their task is by this time completed. The experienced yachtsman is he who starts early in the fall as soon as his boat is out of the water and begins the overhauling of the engine. For the benefit of those who neglected to exercise this foresight we will give a few words of advice.

Such jobs as are to be done about the hull can easily be delegated to the rest of the crew but the motor—that is something different. No alien hands will be permitted to touch the heart of the ship. The skipper reserves this joy to himself.

We will assume, of course, that the motor was properly cared for last fall and that the cylinders have been well filled with oil and the outside well slushed. The first thing to be done therefore is the removal of this slush and



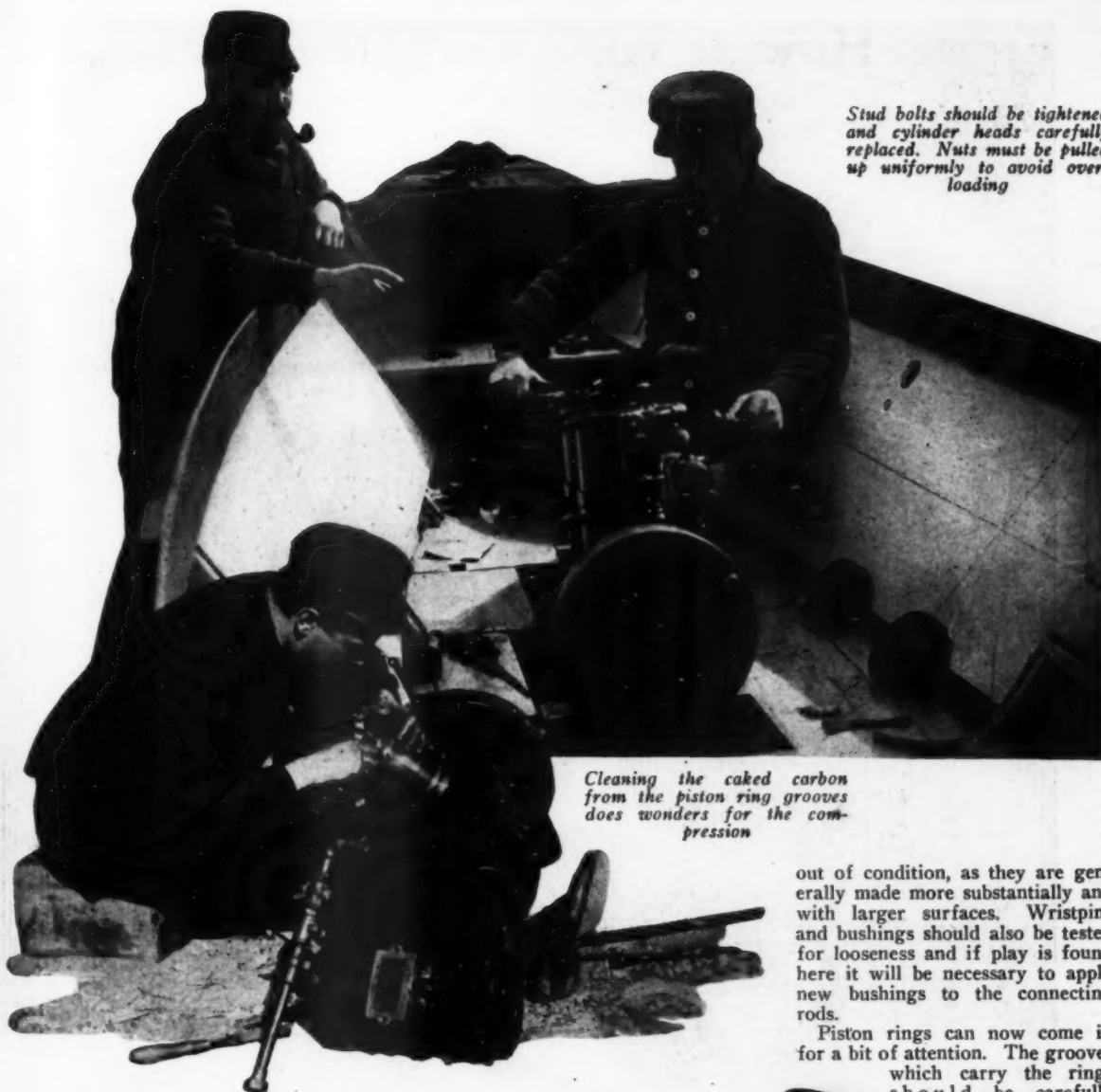
When working about the carburetor be careful how you dispose of the matches used to light your cigar

To take the motor out of the hull use lots of help and a little patience

protection on the exterior of the motor by the liberal use of rags, kerosene, and elbow juice. Take out the spark plugs or valve caps and fill in the cylinders with kerosene. This is for the purpose of cutting old, gummed oil from the cylinder walls, rings, and back of the rings. After a week of soaking it will be found that this kerosene has all worked its way past the pistons and is now in the crankcase.

The motor should be turned over a number of times in order that this kerosene will reach every part of the interior and thoroughly clean and free it from all accumulated carbon and oil. This should then be drained off and discarded. If there are hand-hole plates these can be taken off and the interior wiped dry with rags. Waste is not advised as lint particles will become separated and are apt to remain inside.

Stud bolts should be tightened and cylinder heads carefully replaced. Nuts must be pulled up uniformly to avoid overloading



Cleaning the caked carbon from the piston ring grooves does wonders for the compression

out of condition, as they are generally made more substantially and with larger surfaces. Wristpins and bushings should also be tested for looseness and if play is found here it will be necessary to apply new bushings to the connecting rods.

Piston rings can now come in for a bit of attention. The grooves which carry the rings should be carefully cleaned of all accumulated carbon deposits and made bright. Rings which show traces of burning, that is dark spots which indicate lack

(Continued on page 62)

The condition of connecting-rod bearings should be next investigated. This can most readily be done by lifting up on the connecting-rod bearing by means of a long screw driver. Meanwhile, holding the top of the piston rigid. If there is any perceptible motion it means that the bearings are too loose and this condition should be remedied. Pull the cotter pins and nuts from the connecting-rod cap bolts, then take off the cap taking great care to observe the marks on both the cap and rod so that it can be re-assembled in identically the same way. Shims will be found between the two halves of the bearing, one or more of which should be removed depending on the amount of play in the bearing. It is very surprising to see what a difference a single shim with the thickness of a sheet of tissue paper will make in the fit of a bearing. There should be freedom from side to side in the bearing, but none at all in the up and down direction. If the bearing cannot be brought to a proper fit it might be necessary to use a scraper and fit the bearing to the shaft by means of prussian blue. This last operation is very tedious and should not be undertaken by any but skilled workers. It is a very simple matter to ruin a good bearing by the too strenuous application of the scraper.

Much the same procedure is followed in the case of the main bearings and these should be adjusted and tightened in a similar fashion. There is less likelihood of these being

Methodical overhauling of valves, seats and gaskets under caps also helps



In the Land of Perpetual Sunshine, Palms and Motor Yachts



Photograph by Rosenfeld

A 54-foot standardized express cruiser on the Atlantic Ocean off Miami, Fla. This motor yacht was built by the Great Lakes Boat Building Corp. and is standard in every particular.

Louisiana's Motor Fleet Does Useful Work

Large Fleet of Motor Boats Protects the Many Industries of the State and Conserves Natural Resources

By Harry H. Dunn

THE uses of the motor boat are rapidly becoming more numerous and more varied than those of the well-known hairpin. The writer has seen them helping to put down revolutions in Latin-America, towing barges of fanatic pilgrims up and down the sacred Ganges in India, laden with a king's ransom in pearls in the South Seas, fighting the tides and dodging the icebergs in pursuit of the seal and the salmon under the Circle, and carrying thousands of coolies from job to job through the interior of China, where the river is the only highway, and where the sampan was once the only vehicle, and towing \$10,000 logs of mahogany and rosewood down the Orinoco and the Amazon.

But it has remained for a state of the Union to put motor-

conservation department on timber—worth \$125,000,000 every year to the state—is still slight, the saving to the state on resources other than timber, especially on gas and oil, oysters, shrimp and fish is incalculable. The immediate saving each year, of course, is less than the ultimate gain, produced by protection of the source of supply, and to express in figures what this saving is for any given period is an impossibility. The protection of oysters, shrimp and fish, for example, means a fixed output for this year, but a much larger production next year. The conservation of the output of oil and gas wells, all of which come under the conservation department, means greatly increased production next year and for many years thereafter.

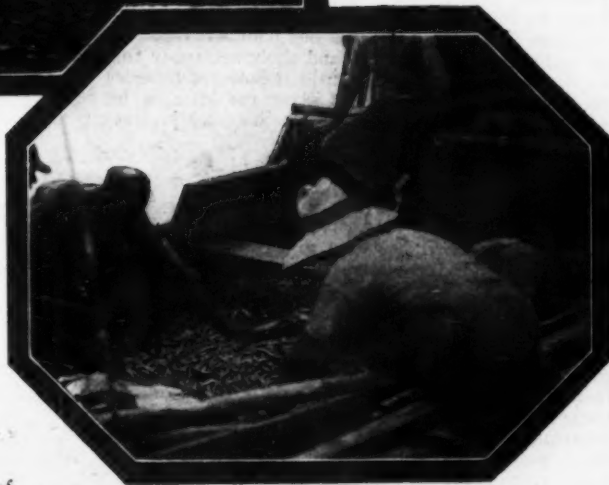
The activities of the Louisiana State Conservation Commission, in all of which the motor boats are continuously and actively employed, are grouped as follows, with special experts in charge of each department: Mines and minerals, including sulphur, salt, natural gas, and oil; forestry, including timber, turpentine, and resin; game, including all wild life, and taking in the protectorate over the government wild-life preserves, such as Marsh Island, Avery's Island, etc.; fisheries, including salt and fresh water, diamond back terrapin, shrimp, crabs and



Louisiana, one of the State's larger vessels, which patrol the oyster and shrimp beds

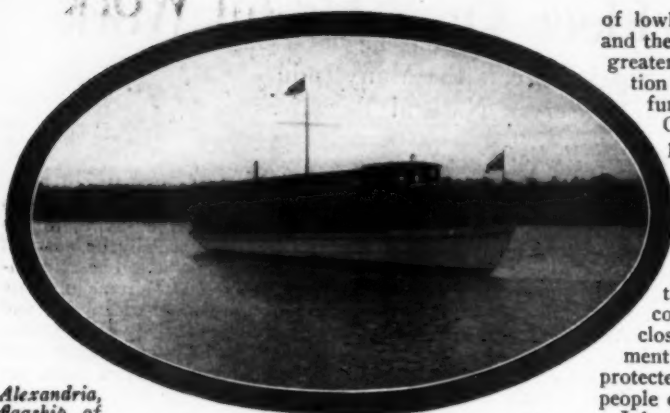
driven craft at work to protect itself, to save its own natural resources, and to conserve for its people the products of its forests, its oil fields, its sulphur mines, its salt deposits, and its fisheries. The state is Louisiana, the fleet consists of twelve sea-going motor boats valued at approximately \$60,000, all belonging to the State Department of Conservation, a self-supporting branch of the state government, with Commissioner M. L. Alexander at its head. The reorganized conservation department has been in existence only about four years, yet its records show that it has helped largely—probably has been the largest factor—in the development of Louisiana's natural resources to the value of \$220,000,000 a year. Without the motor boat fleet, Commissioner Alexander declares, the work of the conservation department would have been impossible, especially among the fresh and salt water fisheries, in running down poachers and game law violators, and in furnishing safe and speedy transportation to the agents of the commission bound for the timber districts, the mines or the oil deposits of the state.

In Louisiana, with its 12,000 square miles of marsh and lowland, and with its nearly 5,000 miles of navigable waterways exclusive of its coastline, this motor boat fleet takes the place of trains, automobiles, horses, and bicycles in enabling the conservation department to supervise the harvesting and the marketing of the products of the natural resources of the state. While the control exercised by the



The shrimp industry needs much protection against poachers

frogs; and oysters, comprising leasing of the bottoms, protection of the lessors of these bottoms, and of their fishermen and their hundreds of boats. Under the oyster department comes also, control of the sand, gravel and shell deposits in the streams and along the coast of the gulf, whence come the hundreds of thousands of tons of material which build the roads of Louisiana, a no inconsiderable natural resource, inasmuch as the state is spending approximately \$10,000,000 within the next twelve months on the construction of improved highways. There is no division of the



Alexandria, flagship of the fleet of vessels operated by the Conservation Commission

state for the activities of the commission, which has absolute control of all these natural resources in all parts of the state.

The commission is a self-supporting organization, and the motor boats without which its work could not be accomplished, must pay for themselves and their upkeep. All funds going to the maintenance of the department come from collections for oyster leases, mining permits, fisheries permits, hunting licenses, etc., and they amount to about \$175,000 a year, which is approximately the cost of the upkeep of the department. Scores of agents are maintained, men who, like the Texas Rangers and the Northwest Mounted Police, must be at once detectives, policemen, lawyers, and judges, for frequently they not only have to enforce the laws but make new ones to fit emergency conditions, and then catch the violators of these laws.

Not the least of their duties is the constant patrol and pursuit of the oyster pirates, men, mainly Greeks and Italians, who, equipped with fast motor boats, refuse to pay the state license for oyster or shrimp or other fishing and are constantly poaching on the leases of the honest fishermen. To combat these last pirates of the United States, many of the boats of the motor fleet of the conservation department are armed with one-pounder rapid-fire guns, and all carry racks of rifles and shotguns, ready for instant service. It is estimated that, in the oyster fisheries alone, the conservation department saves the state at least five times its cost every year in protecting and preserving the oyster bottoms and their products.

To enable the department the better to control the vast fisheries of Louisiana, estimated to be worth from \$12,000,000 to \$15,000,000 a year to the state, it has been given control over all the water bottoms of Louisiana, including all coastal bottoms to the three-mile limit, unless these are otherwise controlled by the Federal Government. With stations scattered everywhere along the coast and on the principal inland waterways, the motor boats of the department are constantly on the move, patrolling the fisheries of the coast, visiting the fishing villages to see that the laws regarding the size and weight of fish, oysters and shrimp are obeyed, safeguarding the large motor boat fleet which handles these fisheries, previously described by the writer in *MoToR BoatinG*, and rescuing lives and property from the disastrous storms which sweep inland from the Gulf of Mexico almost every fall.

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of lowland and marsh lying between the Mississippi line and the Sabine river of Texas would be millions of dollars greater every year than it is. There is no extra appropriation for this storm rescue work, and all is done out of the funds collected by the department under the direction of Col. Alexander, who has brought the department to its present great value to the state. An enthusiastic motor boat cruiser himself, Col. Alexander personally takes out the big 97-foot cruiser *Alexandria*, flagship of the department's fleet, in the midst of these storms and heads the rescue parties. Every year he also makes long trips in this cruiser, or in some one of the smaller motor craft, the 50-foot *Louisiana*, or the slightly smaller *Opeilousas*, over all the territory controlled by the department. It is largely due to this close inspection and attention by the chief of the department that the natural resources of Louisiana are so well protected and so highly developed at large profit to the people of the state.

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(Continued on page 92)



Large motor trawler used in shrimp fishing, 40 feet long with 15 h.p. motor

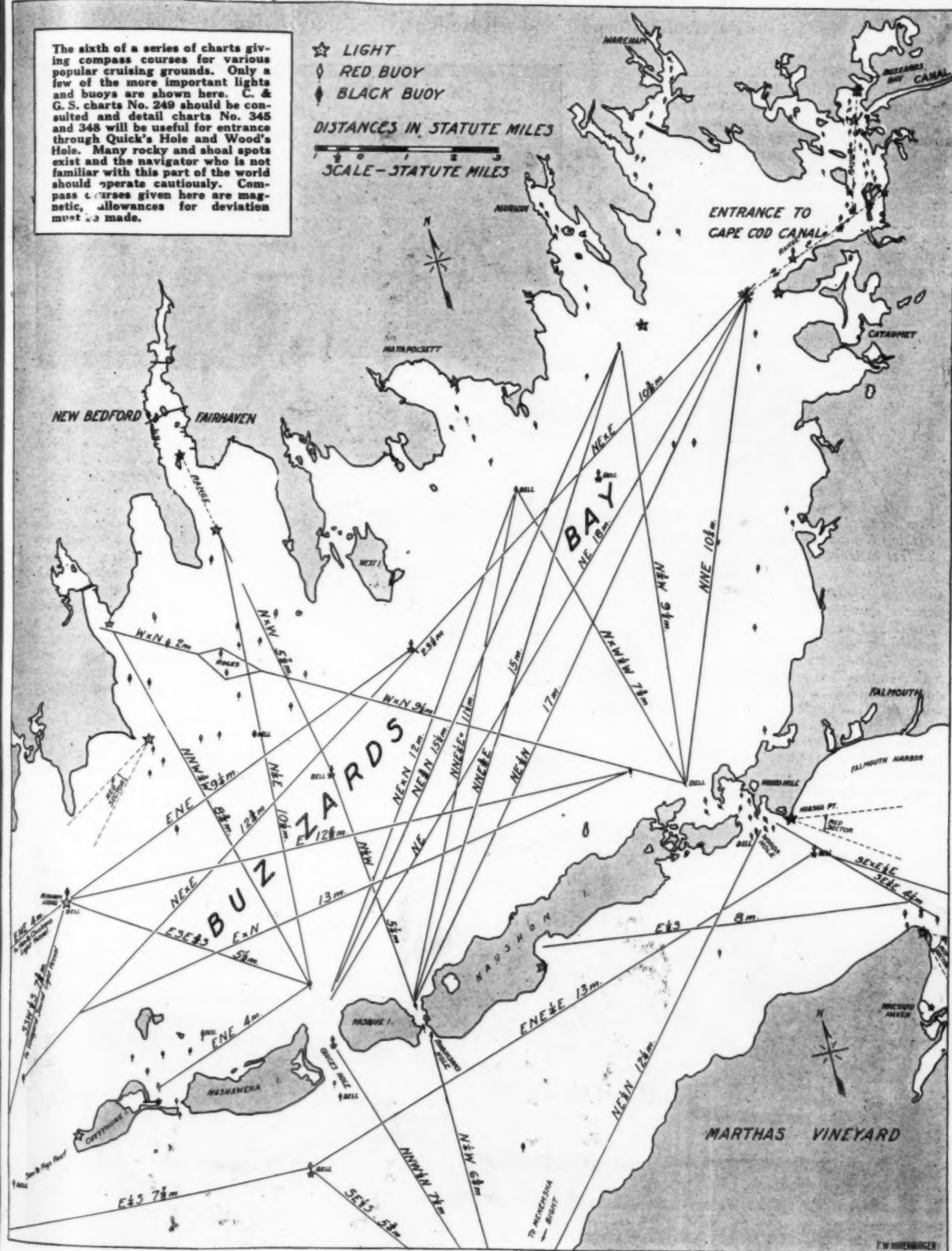
No. 6, Compass Courses on Buzzards Bay

The sixth of a series of charts giving compass courses for various popular cruising grounds. Only a few of the more important lights and buoys are shown here. C. & G. S. charts No. 249 should be consulted and detail charts No. 345 and 348 will be useful for entrance through Quick's Hole and Wood's Hole. Many rocky and shoal spots exist and the navigator who is not familiar with this part of the world should operate cautiously. Compass courses given here are magnetic, allowances for deviation must be made.

- ☆ LIGHT
- ◇ RED BUOY
- ◊ BLACK BUOY

DISTANCES IN STATUTE MILES

SCALE - STATUTE MILES



Standardized Boats in Florida

An Interesting Series of Boats Designed for a Particular Purpose and All Built to the Same Design

STANDARDIZATION is fast becoming the watchword in boat building as well as in other well developed and organized industries. The most recent development in standardized motor boats is a series of six which have just been completed by the Gibbs Gas Engine Co., of Jacksonville, Fla.

Guests of the Florida East Coast Hotel Company have had difficulty heretofore in securing small boats suitable for one-day fishing excursions. To supply the demand for these, they undertook the construction of a number of well-designed boats which have just been completed. Our photographs show them to good advantage, and for their 32 feet of length they are able to furnish the maximum accommodation, without any fancy trimmings whatever. Many valuable ideas

*Completed
Standardized
Fishing Cruiser
32 feet in length*

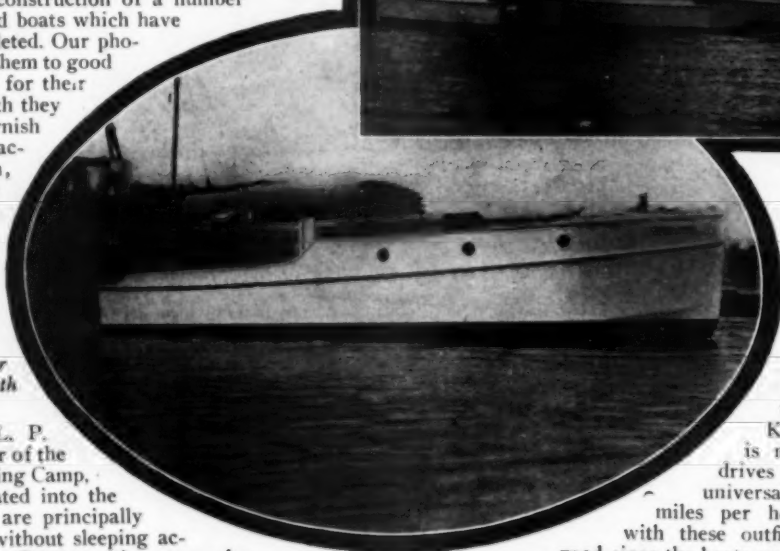
suggested by L. P. Schutt, manager of the Long Key Fishing Camp, were incorporated into the design. They are principally a day cruiser without sleeping accommodations. Guests at the camp who will use these boats spend only a few hours a day on them and sleep at the camp.

The steering arrangement is by side lever instead of a wheel, and tiller lines and quadrant are continuously in sight.

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Fleet of Florida East Coast Fishing Cruisers awaiting tests at the builders' plant before delivery

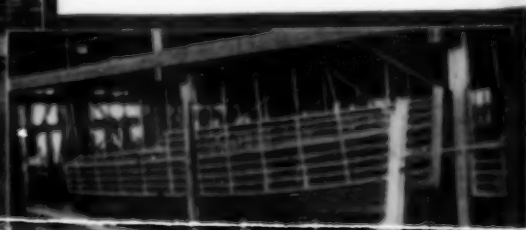


intended to operate at night. Oil lamps are carried for emergency service only. The motive power is a 20 h.p. Kermath Vanadium, which is mounted horizontally and drives the propeller through a universal coupling. A speed of 10 miles per hour has been developed with these outfits, which is remarkably good since the boats are heavily and substantially constructed.

The principal dimensions are: Length, 32 feet; beam, 8 feet; draft, 2 feet 4 inches. Stem, keel and frames are of white oak, while clamps and seam battens are all heart yellow pine. The cockpit is self-bailing and the deck canvas covered, making a most serviceable and compact assembly.

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Boats in frame showing features of the seam batten V-bottom construction



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Electricity Applied to Small Boat Propulsion



Sectional view of the driven boat, showing the noticeable freedom from machinery

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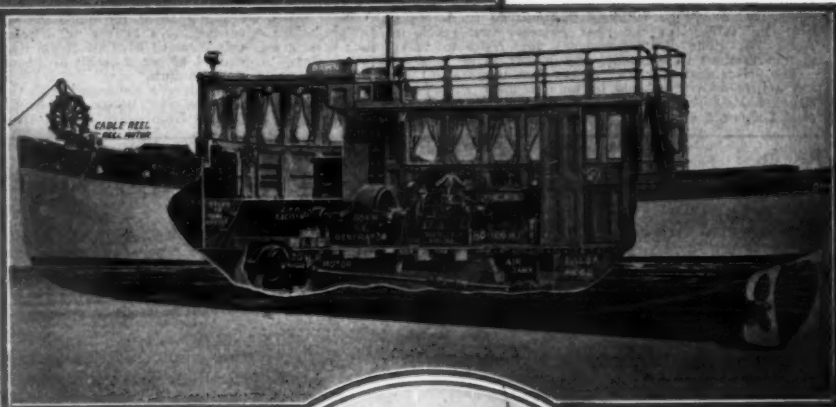
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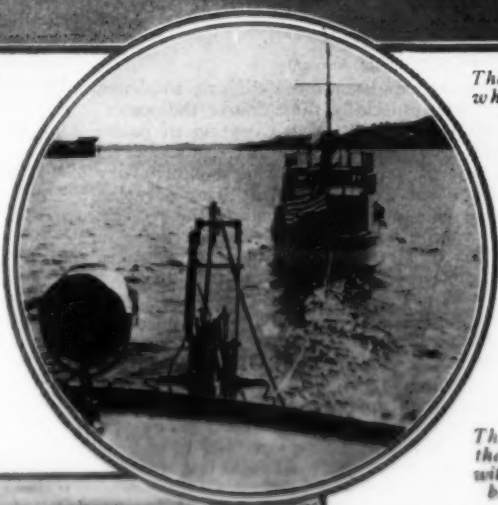
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The power boat which furnishes electric current, not only for itself but for companion vessels also



The application of the electric method with the tow boat behind the tow



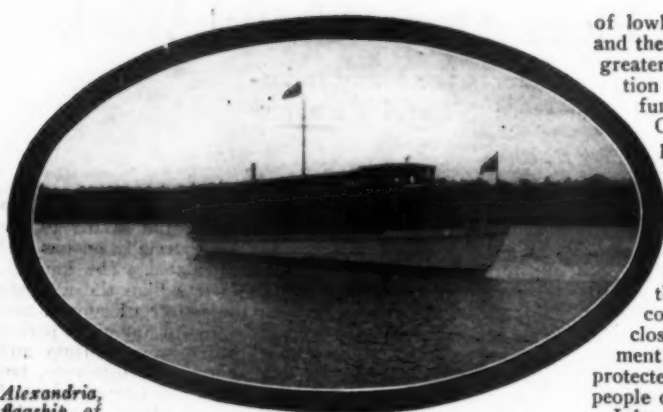
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The shrimp industry needs much protection against poachers

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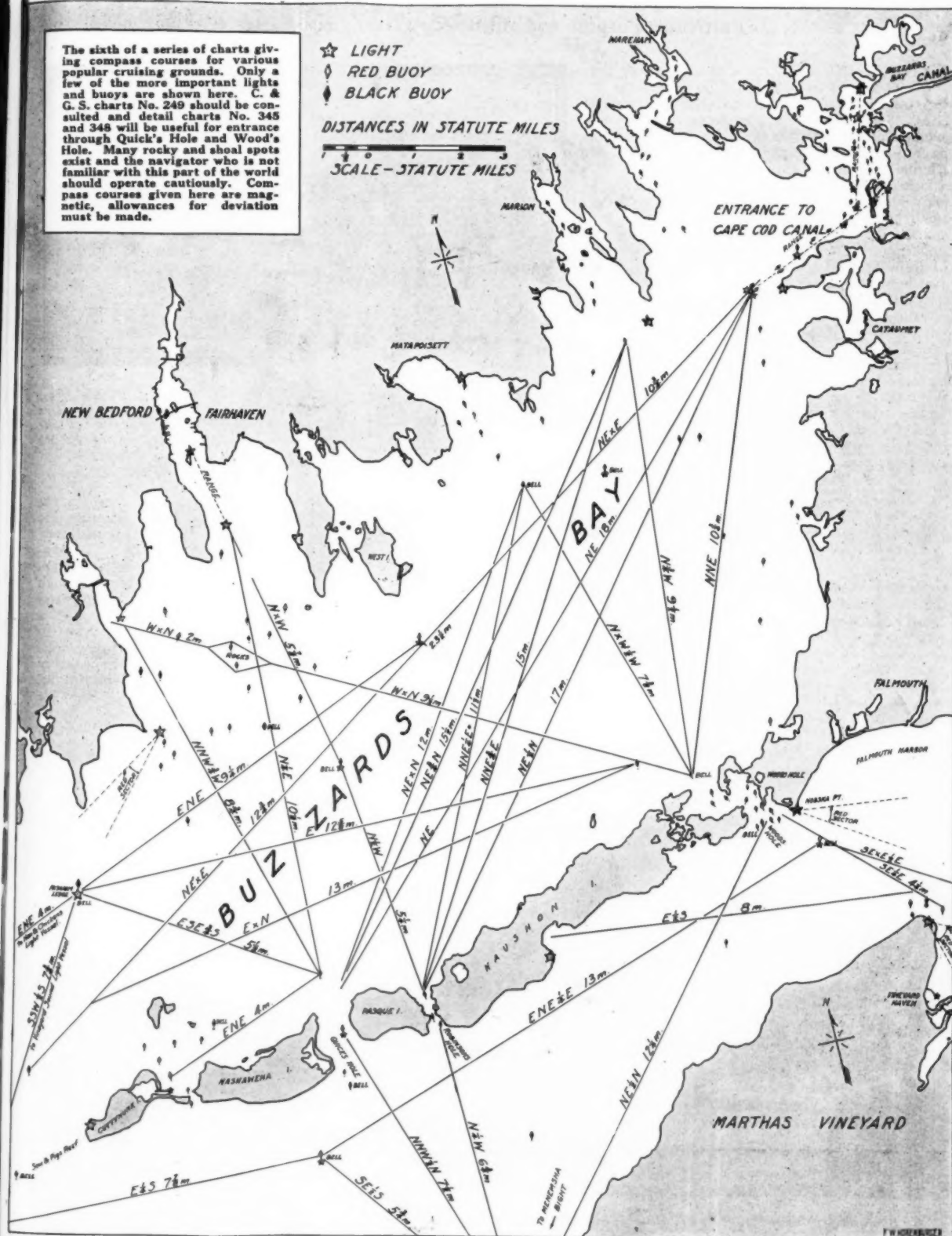


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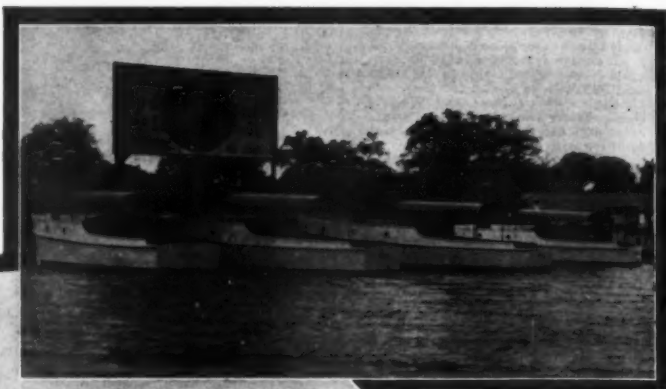
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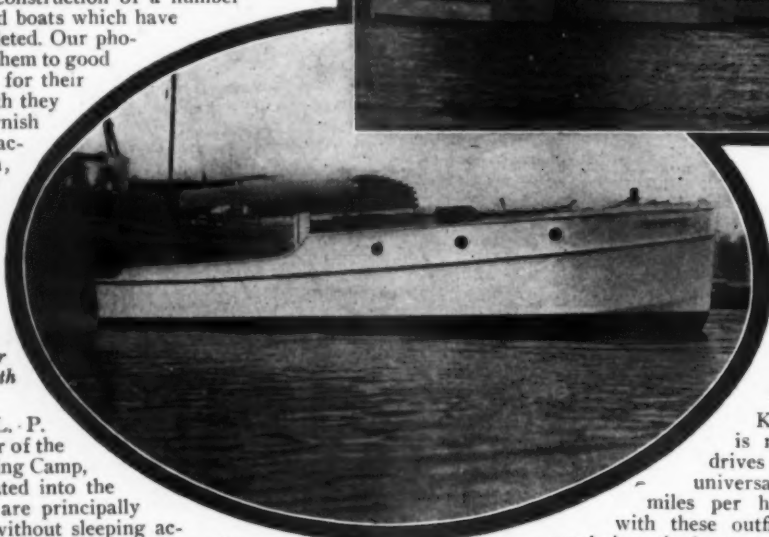
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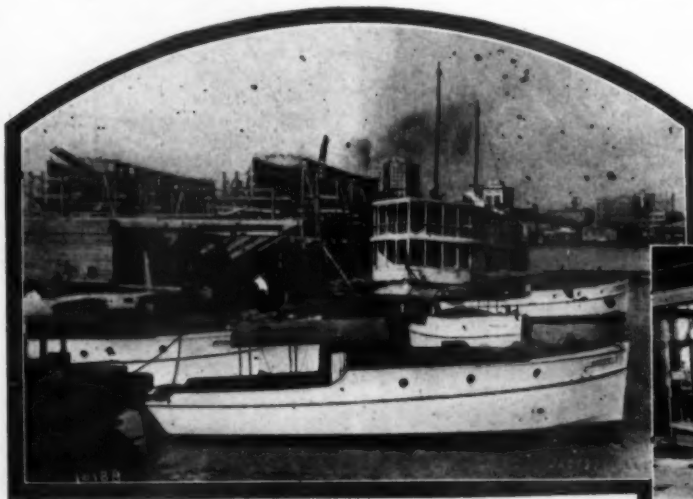
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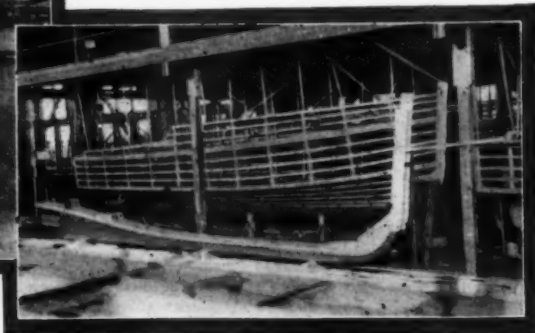
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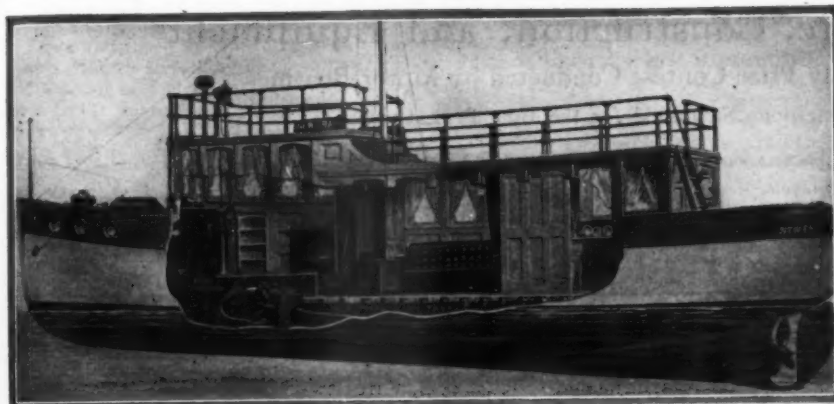
Boats in frame showing features of the seam batten V-bottom construction



Boats under construction at the plant of the Gibbs Gas Engine Co., of Florida, at Jacksonville



Electricity Applied to Small Boat Propulsion



An Adaptation of Electric Motor Drive to a Train of Boats Which All Receive Their Electricity Via Cables from the Accompanying Power Boat

Sectional view of the driven boat, showing the noticeable freedom from machinery

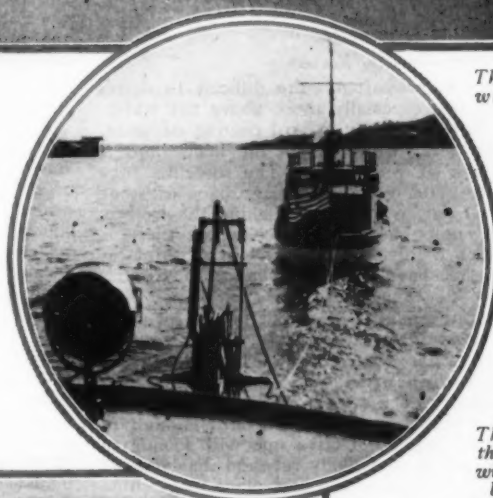
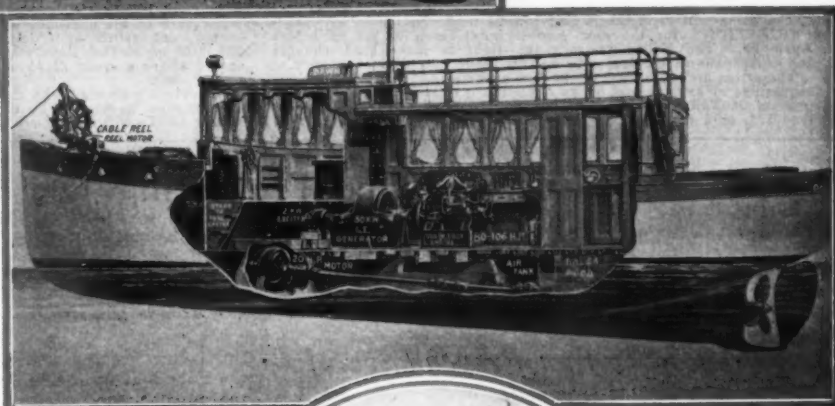
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The power boat which furnishes electric current, not only for itself but for companion vessels also

The application of the electric method with the tow boat behind the tow



The adoption of this system will cause radical changes in the existing methods of forwarding merchandise

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Since the electrical characteristics of both the generator

(Continued on page 58)

SMALL MOTOR BOATS

Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for the June Prize Contest

1. Describe and illustrate if necessary the best way to construct a curved transom for a cruiser.
Suggested by C. R. M., No. Dartmouth, Mass.
2. Describe and give details of a good type of water-tight hatch over the water-tight cockpit.
Suggested by W. R. E., Elmhurst, L. I.
3. What is the best way to install the scuppers in a self-bailing cockpit; forward or aft, straight or bent pipes, outlets above or below L. W. L.?
Suggested by H. H. P., Oakland, Cal.

Rules for the Prize Contest

ANSWERS to the above questions for the June issue, addressed to the Editor of *MoToR BOATING*, 119 West 40th St., New York, must be (a) in our hands on or before **April 25**, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used. **QUESTIONS** for the next contest must reach us on or before **April 25**. The Editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in the current issue of *MoToR BOATING* of which the advertised price does not exceed \$25, or a credit of \$25 on any article which sells for more than

that amount. There are three prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer all.

For answers which we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of *MoToR BOATING*, of which the advertised price does not exceed \$5, or a credit of \$5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.

Locating and Preventing Dry Rot

Several Suggestions to Remedy the Annoyances of Dry Rot and Methods for Prevention in Boats

Answers to the Following Prize Question Published in the February Issue

"Describe a practical method of locating unsound planks, especially those caused by dry rot and not readily apparent from the outside of the hull; also, what would you do to prevent a recurrence of dry rot?"

Ventilation Is Best Preventative of Dry Rot

(Prize-Winning Answer)

UNSOUND planks are often quite difficult to detect from the outside, especially those above the waterline where there is usually a hard coating of paint. This is because the decay begins from the inside and is frequently due to lack of ventilation. The so-called "dry rot" will always cause the greatest damage back of some locker or bulkheaded part of the boat, behind the ice-box or even under the engine bed; any place where there is not a good circulation of air and especially in those places where the boat doesn't have a proper chance to dry out when laid up.

After the boat has thoroughly dried out in the spring is the best time to look for dry rot as planks that are apparently all right when water soaked will shrink up and are quite easily detected when dried out. Sometimes a few light blows of a hammer on the suspected parts will reveal this condition. The blows should not be hard enough to injure a sound plank, but a defective one will soon give way and there will not be that lively rebound that you get from a sound plank. Of course the best place to examine for dry rot is from the inside where the trouble starts, but as it usually begins in the least accessible places, most of the examination will need to be made from the outside. Probing with a knife blade around suspected parts will generally bring results; and if there are any caulking seams excepting the one along the keel that proves troublesome, take particular care to determine the plank's condition.

As explained before, ventilation is the great preventative of dry rot and must be provided to every part of the boat if it is to last for many years. Cabin boats that are ceiled up on the frames inside should have an air space below the cabin floor and have

this connected to a ventilator so that air will circulate below the floor and up inside the ceiling and out at the top above the upper clamp. Ventilate every part of the boat in some such manner and then when laying up time comes, take up the cabin floor, open all lockers and provide every chance for the boat to air out.

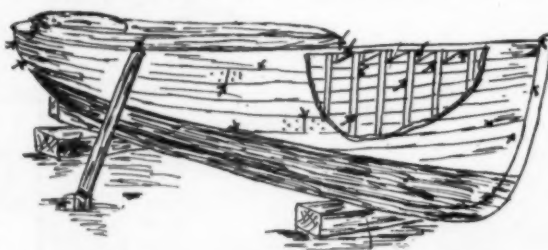
I have often been asked if there wasn't some remedy for this dry rot; some pill or medicine that would restore the unsound planks. Yes; a thorough application of creosote wood preservative applied while building; the only time when the most affected parts could be reached; will do much towards prolonging the life of the boat. The kind of wood used in the construction also has a whole lot to do with how long the boat will last.

Cypress, "the wood eternal," when free from sap and given a fair chance will last for planking, probably longer than you will ever want the boat. Genuine white oak is the most durable wood for frames that I know of and even this will not last like the cypress planking because it is inside, away from the air where it doesn't have as good a chance. Usually one of the first places to go is that part of the stem or stern post inside the rabbet and about at the waterline. When building new it would be a good plan to apply creosote to those parts.

Red oak is frequently used for framing of small boats because it is quite easy to obtain, is straight grained and bends well. This wood should be avoided because it is not durable when used in wet places although quite satisfactory for finishing.

That part of the boat along the keel is seldom affected by decay because it is deep in the water where it remains cool. Higher up under the lockers and nearer the waterline where the dampness from inside and the heat from the outside forms a sort of vapor that penetrates every fiber of the wood if allowed to remain is where the trouble begins.

C. H. C.,
Saginaw, Mich.



Most frequent places where dry rot occurs according to W. B. M.

Dry Rot and Its Prevention

DO you inspect the planking and frame of your boat annually to determine whether the wood is sound or has commenced to deteriorate? The deterioration of wood by rotting is caused by dampness and moisture and no part of a small boat is always absolutely dry. If you have not been in the habit of inspecting the hull to determine the condition of the wood, go over every plank and frame in it before beginning to fit out.

Beginning at the sheer go over the planking in a systematic manner so that no soft spots may be skipped. Punch the blade vigorously at the planking, especially at the ends and butts and along the edge where there is most apt to be sap wood. The point of the blade will hardly enter sound cypress a quarter of an inch, but if the wood is "punky" it may go in an inch, or all the way through. The paint may appear sound and good, still you might be able to push a 1/2-inch bolt through the wood without effort. The space between the frames, planking and ceiling and small nooks in the construction are the most likely places for dry rot to flourish; particularly above the waterline where there is generally a constant surface dampness due to sweating. The knife test is the only reliable method of determining the condition of the planking frames and deck covering.

The heavier parts are best tested with a small auger. The keel, stem, and deadwood are sufficiently heavy to stand a $\frac{1}{4}$ -inch or $\frac{3}{8}$ -inch hole without weakening. The auger hole is afterward filled with a pine plug set in thick white or red lead paint and cut off smooth. By noting the chips as they fall you can easily determine the condition of the wood. Sound chips will be bright and hard, but should the wood be rotten the chips will be brown, or if the rotting has continued far enough you will get no chips but only a brown powder.

The knife test is available for the heavier parts of the hull but it will seldom reveal the presence of slight dry rot, which works from the inside out. Isolated cases of dry rot appear here and there below the waterline, especially in the sappy portions of the timber used in the construction.

Dry rot! After you have found it—let's hope you haven't

—what is it? You know that the wood is all powdery but what caused it? Dry rot is rather a vague term. We quite naturally assume that it is decay caused by continual dryness but such is not the case. *Merulius lachrymans*, its scientific name, tells us nothing. It is a fungus growth and moisture is essential for the propagation of the spores which spreads in all directions, destroying the wood by reducing it to dry brown powder. Alkalies, especially limes and cements are very favorable to the progress of fungus growth. This might be offered as an argument against cement ballast improperly mixed and poured.

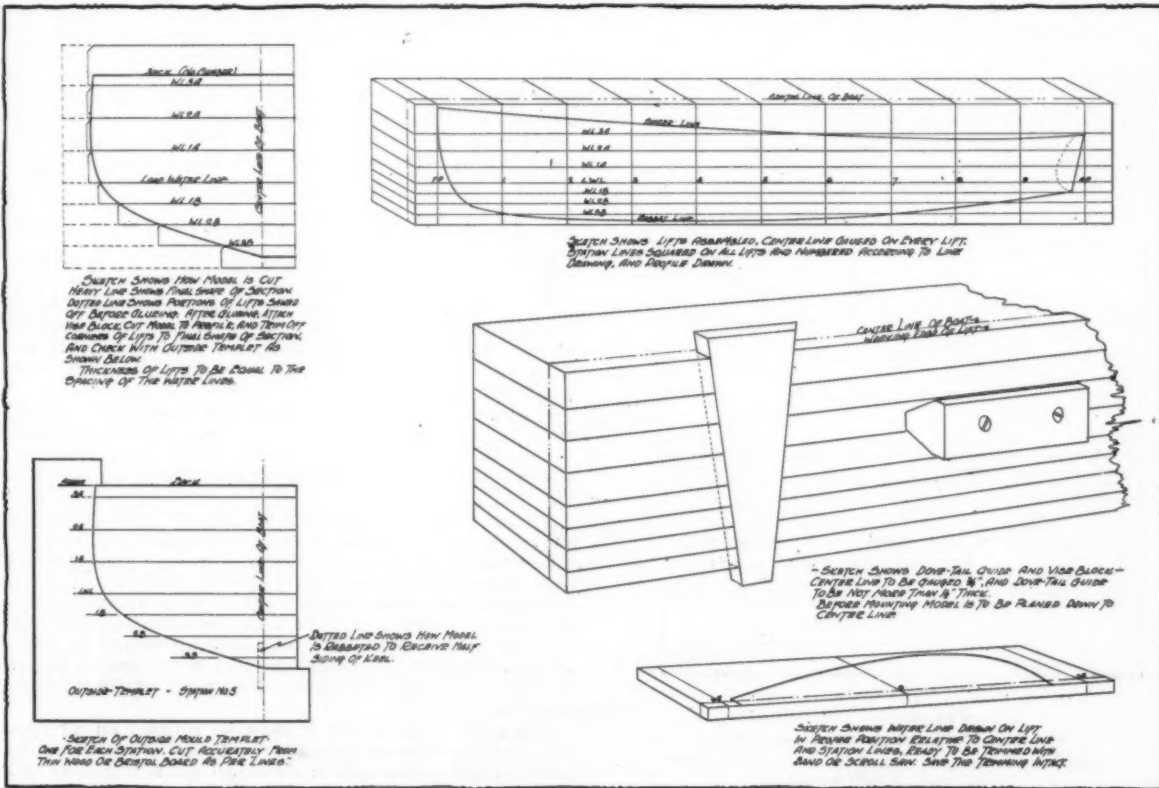
The first appearance of dry rot shows as a thin white film which gradually thickens at its center and turns to a rusty brown. Its last stage is a dry brown powder leaving only the surface of the wood intact.

Dry rot is generally believed to be a decay brought about by insufficient ventilation but it is not. Damp close air hastens its progress but the spores of dry rot get into the air checks in the end of the timber as it seasons, and develop or lie dormant as conditions permit. Standing timber is sometimes attacked by a fungus growth and in many cases is unsound when cut.

It is quite evident that to guard against dry rot, protection from dampness is imperative. This is best attained by the application of a good chemical wood preservative such as creosote or carbinoleum, and efficient ventilation. The most effective application would be before the boat is constructed. The frames, inside of the planking, carline and deck covering and transom should be well saturated with the preservative. After the boat is built the best possible treatment to prevent dry rot is a thorough application of preservative to all inclosed parts such as under decks and floors, behind lockers and ceiling and any other inclosed space which is apt to be damp. You can not paint over the preservative but it is miles ahead of paint for protection as it penetrates deeply into the wood.

Ventilation is best assured by a cowl ventilator on deck and an opening in the ceiling on each side to insure circulation of the air. All doors and hatches should be open as much as possible and when the boat is laid up provide for ventilation.

W. B. M., Newburgh, N. Y.



Detailed information for making models furnished in drawings by M. S. N.

How to Make a Half-Model From a Boat's Lines

Various Methods of Accomplishing This Task with Materials, Tools, and Necessary Requisites

Answers to the Following Prize Question Published in the February Issue

"Tell how to make a half-model from the drawing of the lines of a boat. Best material to use, number and kind of tools, finishing, etc."

Building a Half-Model

(Prize-Winning Answer)

THERE are two methods of making a half-model of a boat, the choice depending on whether you wish a working model or an ornament for your room. The first method makes use of the waterlines, the second of outside templets made to the shape of the various sections. To start either way, make a pencil copy on tracing cloth of the lines of your boat.

To make the model by waterlines, plane a board for each waterline to a thickness equal to the distance between the waterlines. These boards are the lifts and should all be of the same length and width. Both length and width should exceed the corresponding maximum dimensions of the boat. Gauge these boards $\frac{3}{4}$ inches on all sides along one long edge for a centerline as shown by the sketches. Placing the lifts together in a vise, carefully mark the perpendiculars and midship station on the back, top, and bottom, square to the lifts, as shown and make two cuts for dove-tail wedges for small, and three or four for larger models. This is best done by making the wedges first and carefully cutting the grooves to suit. Taking each lift separately, prick through the corresponding waterline from the pencil tracing, care being taken to point the pricker outboard rather than inboard, lest the holes show on the finished model. Draw the waterline on the lift through the prick marks, trim the lifts clear of the line—as shown—and level the edge up to the line, being careful not to cut away the marks anywhere. Reassemble them by means of the wedges after they have been covered with glue, drive the wedges home, and clamp the whole tightly. When the glue is cold and hard, clean and plane the back of the model smooth, on it prick through and draw the profile and trim it to the line. Fasten one or two blocks, depending on the size of the model, by screws to the back and clamp the model in the vise by this means. Now,—starting amid-

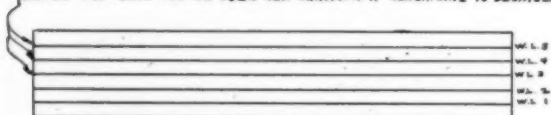
ships and carefully working toward either end trim off the excess wood and shape up the model by very closely following the waterlines. Where extreme accuracy is desired, as for a model which will be marked and scaled, outside templets should be used—as shown—at the various stations. To fair up, apply short battens to various parts to locate bumps and hollows, and carefully scrape and sand-paper these away. When the surface is as true as you can get it, apply two coats of filler, followed by four coats of shellac. Rub down each coat of shellac, with medium and then the finest sand-paper before applying the next coat, taking care not to rub through the shellac to the wood beneath, or to rub off or round over any edges. Finally, polish with oil and powdered pumice several times.

In making the model by the outside templets alone, make only two lifts, one for the underbody and one for the top-side, dove-tailing and cutting to the waterlines as above. Here only the load waterline and the waterline of maximum beam should be used, respectively so that no wood will be lost. The shape between these lines is found by marking across back, top, and bottom all the stations and using at each, the outside templet corresponding. By rubbing white chalk along the inside edge of the templet any bumps on the model will be marked by a white spot. By carefully cutting, sandpapering, and scraping, the templets will slowly fit the model tightly, and the finishing touches may be added as stated. For motor boats and craft having small keels, the profile may be cut to the rabbet line and the back of the model grooved out to take a small flat piece of the proper thickness shaped to the line of the keel, deadwood, rudder, etc. A final touch is to plane the model to the centerline, and fasten to a backboard so finished that it sets off the natural colors and polish of the model.

Briefly, the best woods for the upper part are walnut and mahogany and for the underbody white wood or white pine. Thoroughly air-dried, seasoned lumber is preferable. Mallet and chisel, large and small gouge, plane, saw, screw-driver, a good spoke-shave, gauge, clamps, prick-point, hot glue, sand-paper numbers one and double o are best—and shellac, filler and polish as mentioned are necessary. If a band saw and planer are available, much tedious labor and time can be saved. With plenty of time and care, experience has shown the writer that these methods produce very exact and beautiful models, especially in mahogany and pine.

W. S. N., Baltimore, Md.

BLACK CAMBRIE CAN BE USED FOR SEAMS IF A BLACK LINE IS DESIRED.



ELEVATION

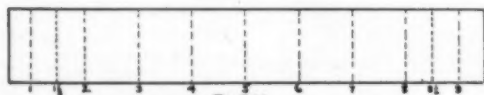


PLAN
FIG. NO. 1

SHOWING BLOCK GLUED UP



ELEVATION.



PLAN
FIG. NO. 2

BLOCK WITH STATIONS OR ORDINATES MARKED.

Details of methods followed by J. A. S. in order to make a half-model

To Make a Half-Model from the Lines

THE following method has been found by the writer a simple and accurate way if carefully carried out. First of importance is to have the proper wood which must in all cases be thoroughly seasoned. Mahogany, walnut, white wood, cedar, and pine may be used, but the latter is by far the best if of an even fine grain free from knots, etc.

If a model is desired showing all the waterlines as shown on the line drawing: The space between waterlines should be carefully scaled and a piece of wood gotten out just as thick as this space for each of the spaces; as shown in Fig. 1.

Taking great care that they are closely fitted or jointed and when placed together the seams will check up with the waterlines on the drawing. Use just enough glue to cover each piece and make sure there are no bunches. Keep the different seams open, then put on as many clamps as can be obtained, extra care to be taken to make sure that the ends are fitted close, or they will have a tendency to open; to insure against this make the block a few inches longer than the boat. This will allow cutting away any such imperfections.

When the block is dry it must be squared on all four sides and the different stations or ordinates produced on the side that will be the back of the model and across what will

be the top of deck as Fig. 2, 1, 1½, 2, 3, 4, 5, 6, etc. On the back of the block mark out the profile using great care to keep the right waterlines on the plan directly over the seams of the block, also see that the ordinates check fore and aft.

Then the deck line can be marked on the top of the block in the same manner by placing the drawing on the block and punching through the line with the point of a divider or other sharp tool, then fair the line with a batten and sharp pencil. With profile and deck line marked the block can be cut first on the shear line, do this on a band saw, as it is necessary to put the piece cut away back on again as in Fig. 3, while sawing out the deck line, when it can be removed.

Now there must be a template made for each of the ordinates. Some thin pieces about ⅛ inch thick will do for these and they can be lifted from the body plan by pricking through the line desired and faired with a curve as in Fig. 4. Leave a small projection at deck height and mark centerline at bottom as in Fig. 5. The little hook at the deck will serve as a guide. With a template made for each of the ordinates, just fair up the deck, getting a true sheer line taking care to keep the deck at exactly right angles to the back of the model, after which the ordinates must be carried across the deck again, as in Fig. 6.

Now the wood can be cut away from the bilges until the model begins to take the desired shape, using the templates all the time to get the proper shape. By keeping chalk on the edge of the template it can be readily seen where the next wood is to come off, keeping the little hook at the deck in place and placing the template always perpendicular. As the section nears completion the center line mark at the template will come nearer the line of the back of the block as Fig. 7.

Continue this until each section fits closely without showing any lights between template and model or when template is chalked it will show a chalk line all the way from deck to keel line at bottom as Fig. 8. Sand paper (not too coarse) is the best for approaching the final shape as it causes a less radical change and yet works quickly.

Refer often to the line drawing to see that the water lines on the model are taking the shape as shown thereon. Finish the model off with No. 00 sandpaper that has been used, always using a block taking care not to rub off the sharp

edge at the deck line. Finish the model bright by giving it several coats of shellac, each coat to be well rubbed down with steel wool to a good polish. The model can then be mounted to suit the taste on a sanded board or a plain mahogany board about 2½ inches wider than the deepest part of the model and about 6 inches longer than the O. A. length; a 45-degree bevel cut on this gives it a very neat appearance. Fig. 9.

The name of the boat can be placed on the board in gold letters and a very pretty ornament is ready to adorn the wall of a den, office or clubhouse.

In the above article the writer has used the deck lines as one of the starting points, assuming that the boat is wider at the deck, but if she should have a tumble home use the widest water-line when first sawing out the side contour and making the deck line after the sheer line is cut.

The form of the boat is to be considered in choosing the tools, but a low angle block plane, chisels ⅜-¾ inch and 1¼ inch, a common spoke shave, a ¾ inch gouge, a piece of blue carpenter's chalk, plenty of sandpaper from No. 2 to No. 00 and some steel wool, and a good pocket knife with a long narrow blade, will be a good kit to make the average model with. Of course larger planes and plenty of clamps are needed to prepare the block according to the size of the model. The writer has used this method a number of times and finds it more accurate than the old method of using the water-lines and fastening the different lifts together; as it is not easy to get these glued at the edges after being cut.

J. A. S., East Boothbay, Me.

Complete Instructions for Building a Half-Model

Generally there are two methods of constructing half or relief models. One system, often used when a desire to show lines effectively for their technical value is entertained, is to construct the model of several longitudinal strakes or layers of wood, each strake of a thickness to represent the distance between waterlines. Alternate strakes are usually of some kind of wood contrasting in color to the ones directly above and below. The other method, and probably the least difficult to master, is to use but two pieces of

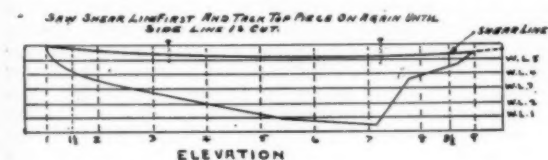


FIG. NO. 3
DECK & SHEAR LINES READY TO BE SAWED.



FIG. NO. 4
SHOWING TEMPLATE AFTER BEING PRICKED FROM BODY PLAN. MARK ORD. NO. ON EACH TEMPLATE.

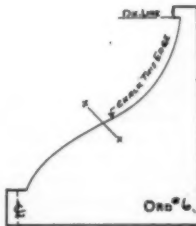


FIG. NO. 5
SHOWING TEMPLATE CUT OUT TO PRICKED LINE WITH HOOK AT DECK LINE AND CL. MARKED. MAKE TEMPLATE FOR EACH ORDINATE.

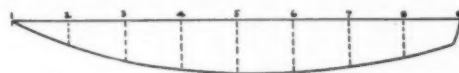


FIG. NO. 6
SHOWING ORDINATES REPRODUCED ON DECK AFTER SHEAR IS FAIRED.

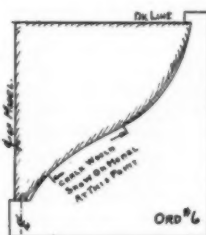


FIG. NO. 7
SHOWING MODEL PARTLY CUT AND NOT FITTING TEMPLATE. NOTE CL OF TEMPLATE.

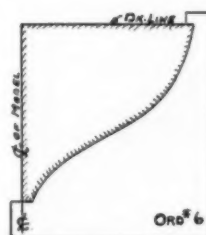
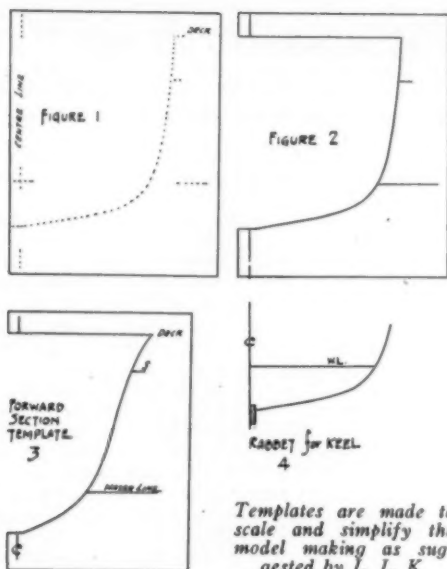


FIG. NO. 8
SHOWING MODEL FITTING CLOSE TO TEMPLATE FROM DECK TO KEEL. NOTE CL OF TEMPLATE.

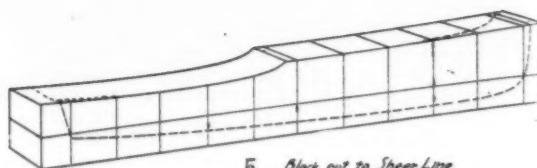


FIG. NO. 9
SHOWING MODEL MOUNTED ON BOARD.

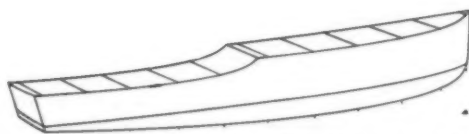
Further details by J. A. S.



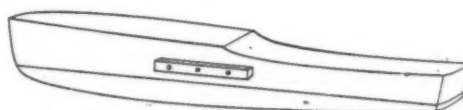
Templates are made to scale and simplify the model making as suggested by L. L. K.



5 Block cut to Sheer Line Profile and Deck Lines marked



6 Cutting of Profile and Deck completed—Sides are parallel. Width at L.W.L. being like that of Deck.



Screw fasten block to back—to facilitate holding model in vise—

wood with the division at the load waterline. This latter method, if carefully completed, can be made to a fine degree of accuracy and requires considerably less labor. From the viewpoint of beauty, too, this is the better, for a model made in the former way bears a close resemblance to a layer cake.

The selection of material should be limited to coniferous woods—which can be easily worked and take a good finish. Preferably the lumber should be of one log, so as to obtain uniform texture of grain. It should be well seasoned and free from defects. Several kinds are stated herewith in order of preference: White Pine (White Wood, Soft Pine, Sugar Pine), White Cedar, Spanish Cedar, Red Cedar, Port Orford Cedar (Douglas Fir), Spruce and Red Wood. For backboard use, any of the broad leaved hard woods, the selection being mostly a matter of personal preference. A specie of Mahogany is generally the first choice followed by Teak, Black Walnut, Butternut, Cherry, Birch, Gum, Hackberry and Holly, the last-mentioned being nearly white in color.

Efficient results will be more certain if the necessary tools are obtained. A work bench fitted with a carpenter's vise is essential. If the entire work is to be completed by the "model maker," the full list of tools will be required. Rip saw, band or hack saw, jack plane, small iron blockplane, several clamps, hatchet, draw knife, spoke shave, gage, dividers, $\frac{1}{4}$ -, $\frac{1}{2}$ -, $\frac{3}{4}$ -inch chisels, $\frac{1}{2}$ -inch nearly flat gouge, fine rasps, brace and several bits, screw-driver, steel square, try square, carving tools, few splines or battens, 3x4-inch cork blocks and sandpaper, not forgetting glue, shellac, paint, varnish, brushes, pumice and rotten stone powder, linseed or crude oil, a few brads, screws and two screw eyes.

Each strake, scant of the full dimension between waterlines to allow for glue, should be carefully surfaced. The top and bottom strakes should be thicker to embrace curve of sheer and run of rabbet. Do not cut strakes to finished dimensions in length or width, permit leeway of a few inches both ways. Slash grain should be used, grain of each strake to run in like direction. Square the strakes in the vise and bore through top near centerline for three $\frac{1}{4}$ -inch trenails. This should be done with care so as not to bore through bottom strake. While still in the vise, mark section lines on back of block with square and scratch awl or hard pencil and then square off across top. Remove this strake and repeat the marking on each layer in turn. Place the drawing of the lines and prick the shape of the deck and waterlines on their respective strakes. Use a sharp pointed awl or needle held in an awl handle as pricker. After connecting the prick points with the aid of a batten,

cut each strake to the line so drawn. Spread a thin layer of warmed liquid glue on each surface of the intermediate strakes, assemble again, drive trenails home and clamp securely together. The model, now resembling a flight of steps, must be put aside for at least twenty-four hours to permit the glue to set.

A pleasing result can be obtained by using a single piece of Spanish Cedar or a soft grade of Mahogany for underbody (below load waterline) and one section of White Pine for topsides. If the entire model is to be made of one kind of wood, mix a small amount of lamp black in the glue, and a clear dividing line (load waterline) will always be visible which will also serve as an accurate line to work to.

The gluing and rough cutting are the most troublesome parts of the entire work and require a considerable number of tools which are of no use in finishing the model. It is suggested that this be accomplished at the shop of a cabinet maker or boat builder. The cost is slight, and the time saved by shirking this uninteresting part of the work is a redeeming feature. After the two parts are glued together, scratch section lines on back and square across top and bottom. Mark from paper pattern the profile; sheer, rabbet, stem and transom at center. Order cut to within about $\frac{1}{16}$ -inch of the line by band saw. Then mark and complete deck line—include tumblehome—in a similar way. (Omit keel entirely as this part is best made from a separate piece). After sheer and rabbet are fair square across again on top and bottom from section lines on back, using a sharp pencil, leaving lines to guide the placing of the templates.

Instructions as written below may be read to cover both systems excepting that in the layer method one-half the number of templates will be sufficient. For templates of forms use any thin wood which is not less than $\frac{1}{16}$ nor more than $\frac{1}{8}$ -inch in thickness or stiff smooth cardboard. Place body plan over and prick through, see Figure 1. Cut to line, Figure 2, leaving a piece to project at rabbet and deck.

Hold templates to their proper sections and after ascertaining the required shape, cut away the surplus wood with chisel, draw knife and spoke shave. Rub inner edge of templates with blue crayon and frequent fittings will show the high spots on the model. Cut carefully, take but thin shavings. Use block plane at this stage supplemented by rasp. Hold model at different angles to the light, sighting for unevenness, as defects seem to magnify under a coat of varnish. Spring a batten longitudinally and sight for lumps and hollows between sections. Do not cut to finish, but rub with rough sandpaper held around a cork block. Number oo sand-

(Continued on page 60)

Ideal Marine Engine Design

Steam Engine Practice with Open Crankcase Offers Some Advantages

Answers to the Following Prize Question Published in the February Issue

"Give the main features of design of your ideal marine engine, which differs from current practice, with reasons therefor."

The Ideal Marine Engine

(Prize-Winning Answer)

AN ideal marine gasoline engine, as imagined from the extent of our present knowledge, might be a reversible gas turbine, but such a motor has not as yet approached the stage of practicability, so for the purpose of this article we must look up something a little more conventional. An engine which only gives one power stroke per cylinder for two revolutions of the crankshaft and which moreover is complicated with gears, cams, and valves cannot be thought of as ideal; neither can one where the incoming gas enters the cylinder at the same time as the hot exhaust gases leave and which have a closed gas-tight crankcase and even packed main bearings. This would seem to eliminate both the present day four-cycle and two-cycle gasoline engines. A double acting scavenging two-cycle would approach too near the gas turbine as an impossible ideal at the present time, so a rough sketch is presented herewith of a hypothetical engine which, however, appears to resemble the conventional types a little more closely. The sketch is only roughly to scale in its general proportions and the details are only supposed to be shown as suggestions. Specifications follow:

A Four-Cylinder Two-Cycle Cross-Head Type Scavenging Engine. Cylinders: Single acting as far as power strokes are concerned, but down stroke compresses air only in cylinders which is then blown into upper end of cylinder through suitable port in order to scavenge the exhaust gases; an excess of air, if necessary,—to be furnished by the crankshaft air compressor. After scavenging the cylinder, suitable means would be used to compress the air remaining and then inject the fuel through pumps working off the crossheads. Stroke of pumps to be regulated manually through eccentric or other device.

Cylinder Block: en bloc casting, preferably with removable liners. Large plates on each side for access to water jackets. Inlet and exhaust manifolds cast with cylinder block, passages cored.

Removable cylinder head en bloc casting. Air compressor bolted to forward end of cylinder block. Water passages to be cored in as far as possible to eliminate piping.

Crankcase: Steam engine type; closed by light side plates.

Starting and Reversing: Direct-connected electric motor after end crankcase. Revolving field type, field acting as flywheel; free engine clutch integral; to have positive lock on forward drive and positive neutral point.

Starting motor also to be used for reversing engine in conjunction with ignition shift; electrical and mechanical reversing features to be linked together and controlled by single lever; whole mechanism to be as compact as possible and in single box. On forward speed motor to be used as battery charging generator through automatic devices.

Ignition: Hot spot or electrical; if latter, high-tension magneto or battery distributor. Magneto or distributor to have vertical drive and located high; even with cylinder head to keep dry and eliminate wiring. No secondary wires exposed as cable manifold connects directly with end of distributor box. Distributor and breaker boxes completely accessible. As engine reverses, a reversing type of magneto or distributor would have to be developed.

Oiling System: To be automatic positive feed throughout, to all bearings. No grease cups or oil holes or cups to be tolerated.

H. H. P., Oakland, Cal.

Believes in Double Ignition

IT would be hard indeed to design an ideal engine without incorporating in it's construction some ideas practised by different manufacturers, yet which cannot be found collected in any one motor. Below I have named a few details of construction found in very few motors.

In the general design the ratio of the bore and stroke would be 1:1.5. This tends toward greater flexibility and slightly more power.

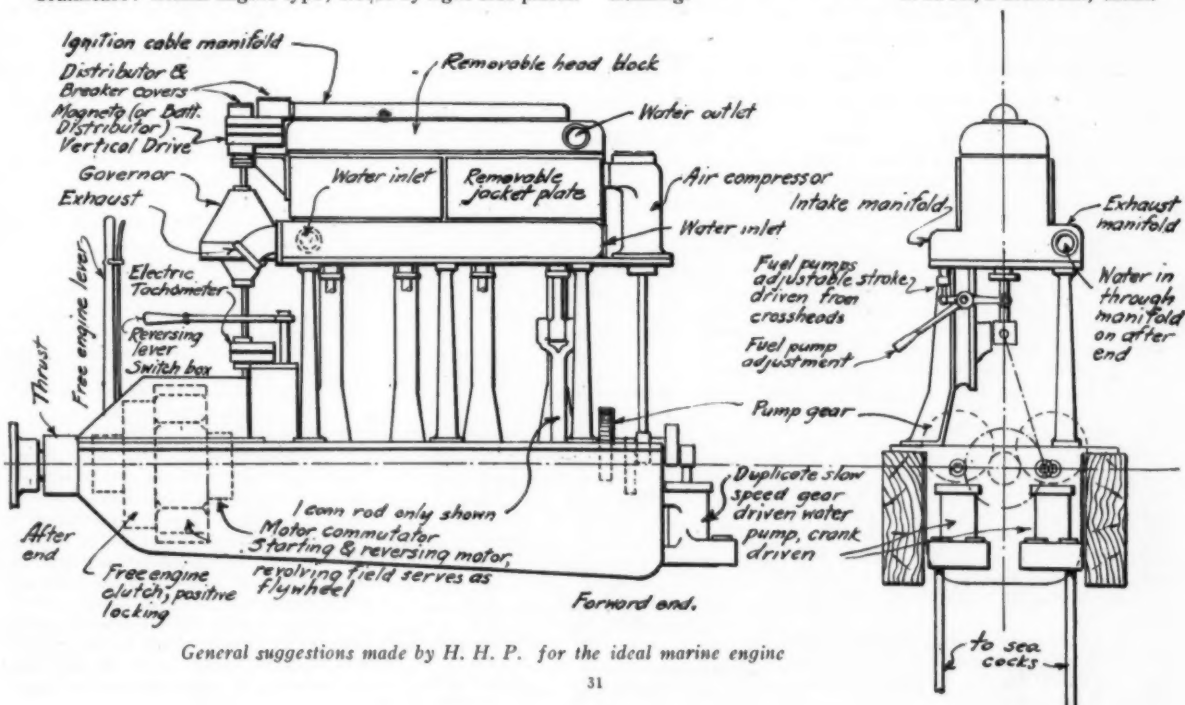
Removable cylinder heads with projection into cylinder to protect gasket from explosive pressure.

Valves in the head actuated by rockers from overhead camshaft. Overhead camshaft increases accessibility, and does away with push rods, guides, etc.

Ignition: Two independent systems, preferably battery with coil and timer, and magneto with impulse starter. The feeling of security more than offsets the additional cost.

Lubricants: Gear pump in base with main pipe running length of crankcase, with feeders to main and connecting-rod bearings. Pipe to be readily removed for inspection and cleaning.

C. R. M., Dartmouth, Mass.



Improvements Suggested in Lubrication

AFTER a man has run a marine motor for a few years so that he is conversant with its salient features if he is a true American he will begin to think how he can improve the design of his motors. I regard the two-cycle motor as obsolete for horsepowers of 10 and above, so the remarks in this article will be based on four-cycle motors of reasonably up-to-date design. The two engines which I have owned are four-cylinder machines of $3\frac{3}{4} \times 4\frac{1}{2}$ and $4\frac{3}{8} \times 5\frac{1}{2}$ size respectively. One of these motors oils by splash, and the other by splash and Manzel force-feed combined. The simple splash system is very difficult to adjust, so that as a rule the engine is either getting too much oil, which fouls the spark plugs, or too little, which may lead to a burned out bearing. The combination system is excellent, the motor after being taken down shows practically perfect lubrication. Both these systems, however, have a design error in that they are arranged to process the oil from aft to forward. This is a reverse of natural, as the oil in a marine engine naturally works aft, and all systems of this nature should be arranged to deliver oil forward, preferably on the forward main bearing, and thence process aft. In both these engines I was obliged to make slight alterations to be sure that the flywheel forward main bearing was not oil starved.

The next trouble that I find is that no provision is made for cleaning out the water jackets. It is absolutely necessary for an engine operating in salt water that some way be provided for cleaning rust and sediment from the water jacket walls. The best way for this would be to fit large hand-hole plates in the water jacket sides, and some of the more recent machines are so equipped. Both my engines put me to a lot of trouble and expense on this score, and I think the water jackets should be cleaned once a season. In this connection, it should be noted that in a large number of engines on the market at present the water jacket walls are altogether too thin for long life with salt water circulation. The minimum thickness allowable to give the service that a motor boatman has the right to expect from such an expensive article as a four-cycle engine is $\frac{3}{8}$ inches. A large number of engines on the market at present have water jacket walls a bare $\frac{1}{4}$ -inch thick, which is entirely insufficient. If it is desired to save weight the cylinders can cast en bloc and the hand-hole plate mentioned above made large and thinner than the water jacket walls. As these plates can be readily renewed and may also be painted on the back side, to aid preservation, they could be made as thin as $\frac{3}{16}$ inch. Another advantage in casting the cylinders en bloc is the doing away with the brass water pipes connecting the cylinder heads. These give rise to a certain amount of galvanic action with salt water circulation and are also apt to have leaky joints.

The next fault I find in the modern marine-motor is the use of a gear circulating pump. This is all right when new, but will not stand up to marine service and should be replaced by the old reliable plunger pump, although for large engines the centrifugal pump is probably satisfactory. The gear pump idea was probably taken from automobile practice and is a step in the wrong direction. In this connection I believe that the water pump delivery should be fitted with a by-pass and regulating valve, so that the amount of water passing through the cylinders, and therefore the running temperature of the engine, may be regulated to give maximum running efficiency. This adjustment will obviously vary with the seasons.

In regard to minor matters, I think the average engine on the market today could be improved by placing all accessories so that the hand-hole plates may be readily removed, by making the hand-hole plates large enough to pass a full size man's hand and leave room to work, and by shortening up the leads from the carburetor.

The addition of a well-designed and standardized device enabling the present day low-grade fuels to be properly consumed is also desirable.

G. B. M., Bath, Me.

Specifications for Ideal Marine Engine

THE average marine motor as now built is undoubtedly a fine reliable piece of mechanism, but there are some points that are incorporated in a few motors that I believe should be a part of all machines. Providing I had to design a motor I would therefore try to incorporate the following features in one machine. The motor would be of the high-speed type and the following suggestions are made with that end in mind. A heavy-duty machine would not necessarily have to have all the points mentioned below in order to come within my idea of ideal.

First—The motor would be of the valve-in-head type with the valves set in without removable cages. The use of cages is all right on some machines, but it prevents the action of the cooling water to some extent. As long as the head is removable the valves can be ground in easily.

Second—The camshaft would be directly over the center of the cylinder and the cams would act against a cross cantilever arm actuating the valves.

Third—The cylinder itself will be a cast-iron pipe without cores or openings of any kind. It will be held at head and base with copper and asbestos gaskets. This prevents the difficulty of core work and the danger of thin or thick spots in either the cylinder wall or the jacket. It also allows the expansion of the cylinder to occur without warping.

Fourth—The jacket is to be of copper held in similar gaskets. If necessary, the jacket can have horizontal ridges to compensate for the difference in expansion between iron and copper.

Fifth—The head and base will be bolted together by long through bolts passing from the top of the head to the base. The heads of all cylinders shall be cast en bloc, but the cylinders are to be separate. This keeps all cylinders properly lined up, but there is not the difficulty of piston insertion that is caused by multi-cylinder en bloc castings.

Sixth—As far as possible all bolts are to be through bolts. This obviates the trouble caused by the hard machine screws shearing off the threads in the softer cast iron.

Seventh—The base is to be used simply as an oil pan and is not a strength member at all. This obviates the carrying of any strength through the base bolts and also saves a great deal of weight.

Eighth—The oiling system will be by mechanical oiler to camshaft and other secondary bearings. The cylinders and wrist pins, main bearing and crank pins are to be oiled with a pump under a pressure of about 100 pounds. The oil is to feed to the bottom of the main bearings to help lift the weight of the shaft and the down thrust off the bearing.

Ninth—The camshaft will be driven by a Morse silent chain contained in an aluminum oil-tight housing. There will be an oil pump and an air pump directly driven from the forward end of the crankshaft without any gears of any kind.

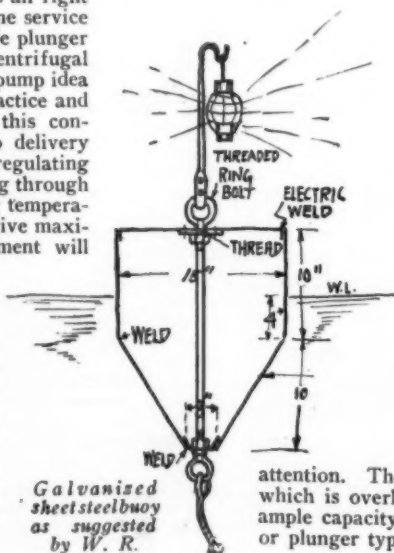
Tenth—The flywheel will be at the after end of the motor where it will absorb the shock of the propeller striking some obstruction, thus saving the crankshaft.

Eleventh—For reversing gear I favor very strongly some type of sliding gear recently introduced by a prominent marine engine manufacturer. This is so designed that it has an ahead and an astern position with an absolute neutral position in which the gears are completely out of mesh. The clutch is the same for either position.

Twelfth—The ignition is an essential feature and should preferably be some form of double independent system. A high-tension magneto with impulse starting device and a reliable storage battery system operating on independent spark plugs would be most desirable.

Other details should also be given attention. The circulation pump is apt to be a detail which is overlooked in some cases. This should have ample capacity and power. Whether it is of the gear or plunger type is not so important.

G. T. W., Brooklyn, N. Y.



Galvanized sheet steel buoy as suggested by W. R.

Construction of Suitable Mooring Buoy

Suggestions for Computing Displacement of Buoys and Weights of Chain Required

Answers to the Following Prize Question Published in the February Issue

"What is the best type of mooring buoy; how is it constructed and by what methods can you estimate the weight of different lengths of chain it will sustain?"

Varying Types of Mooring Buoys

(Prize-Winning Answer)

WE cannot select any one particular type of mooring buoy and say that it is the most suitable for all purposes. In selecting a mooring buoy we must be governed by the manner in which it is to be used. Some boatmen prefer to bring the anchor chain aboard and make it fast, and when they go out, attach a light buoy and drop the chain, the buoy being used only to support the chain and facilitate the picking up. Others will favor attaching the chain to a keg or spar and leave the buoy in the water continually. In this type mooring the buoy becomes a direct part of the mooring and must be much heavier and stronger than when simply used as a marker.

Temporarily attaching a can buoy to the chain when the boat leaves the mooring can be strongly recommended to one who likes to feel sure that his boat is safe in the hardest blow of the season. Using a temporary buoy gives a mooring that is all chains from the anchor swivel to the mooring bitts and the chain must give way before the boat can go adrift.

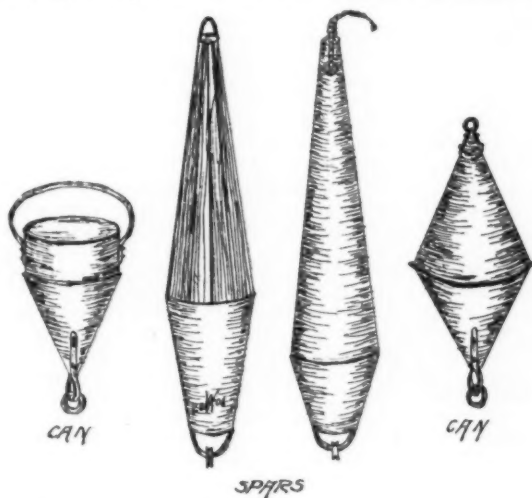
It is claimed that when a permanent part of the mooring, the buoy breaks the direct line of pull on the anchor and

you must choose according to the type mooring you prefer. The chain should be from three to four times the depth of water. In crowded anchorages the chain will be heavier and stronger as its length is reduced. However, the buoy is not required to sustain the weight of the whole chain. Only that part of the chain from the buoy to the bottom bears on the buoy.

The can buoys are constructed of heavy sheet iron galvanized and soldered and will not leak. The regular can buoy has a handle at the top and a strap and thimble riveted to the bottom for splicing a line into and will float upright. The double pointed can has a strap or shackle at each end and floats slightly higher out of the water. The can buoys depend upon the air contained therein for their buoyancy.

The spar buoy is made of cedar, worked up round and tapered at the ends, its largest diameter being about one-third from the lower end. Some types are strapped at each end, while others are strapped only at the bottom and bored at the top for splicing a line into.

The sketch shows approved types of can and spar buoys. The table gives the weight per foot of chain, the cubic inches of air and cedar required to sustain one foot of chain and the length of chain which one cubic foot of air and cedar will support. The table is approximate as based on



MOORING STRENGTH & BUOYANCY									
CHAIN					BUOY				
DIA. IN INCHES	WEIGHT PER FT. IN POUNDS	BREAKING STRAIN IN TONS	APPROX. CU. IN. TO SUPPORT 1 FT.		APPROX. FT. SUPPORTED BY 1 CU. FT.				
			AIR	CEDAR	AIR	CEDAR	DRY	WET	
1/4	91	125	26	40	58	68	43	30	
3/8	150	4	42	66	96	41	26	18	
1/2	250	650	70	110	160	25	15	11	
3/4	450	11	115	180	262	15	9	6.5	
7/8	580	1450	162	255	371	10	6.5	4.5	

ALLOW SAFETY FACTOR OF 4.

Types of Buoys and strength of chain with supporting power as compiled by W. B. M.

standards and no allowance has been made for the safety factor. A safety factor of at least four is good practice except in well sheltered harbors, when it may be reduced to two or three. This means that the safe allowable load on chains and gear should be taken as one-quarter of the figures given in the table.

W. B. M., Newburgh, N. Y.

Galvanized Sheet Steel Buoy

IN determining the size of a buoy it is well not to get the buoy too small or yet too large and thereby hard to handle. The safe way then is to figure out just the size you require. This will depend, of course, upon the length of chain or rope the buoy will be required to carry.

For convenience we will suppose a buoy of the following dimensions made of steel, 15 inches diameter at top, tapered as shown to 3 inches at lower end; what weight will it support at a 14-inch draft? The buoy will carry a weight of chain or line equal to the displacement of the buoy at the given draft of 14 inches minus the weight of the buoy; therefore a buoy of the above dimensions has a cubic contents of .605 feet at 14 inches draft and this multiplied by the weight of salt water per cubic foot equals .605 x 64, the weight of salt water, or 38.8 pounds displacement of the buoy. Now as the buoy itself has an approximate weight of 21 pounds, this must be deducted from the 38.8 pounds displacement which will leave 17.8 pounds, which is the amount the buoy will carry at a 14-inch draft, this rule may be applied for any size buoy and for any material the buoy will be made of.

There are various types of buoys, but for lightness and strength a steel buoy of 1/32-inch or 1/16-inch gauge is very serviceable; the buoy shown may be made of light sheet material with all joints electric welded to make same thoroughly water-tight.

(Continued on page 58)

allows the boat to ride easier on the cable as the buoyancy of the keg or spar must be overcome before a direct pull is available. The buoy which is permanently fastened as part of the mooring must be sufficiently strong in its fastenings to withstand the breaking strain of the chain and there are straps and bands and additional swivels to be sure of. These can be made strong enough, but the more parts there are to break the greater the chance of their breaking.

Of the temporary buoys the can type is easiest to handle and has the most buoyancy for its weight. The solid cork and the cork filled canvas buoys will not mar the finish on the boat, no matter how they are thrown around, but are heavier and easily damaged, and they bring a mess aboard the boat every time they are hauled aboard.

Of the permanently attached buoys the spar has the advantage in weight and protection from damage to the boat, and standing high out of the water is easily picked up. A keg with an iron band and straps is quite heavy and the end hoops will soon wear a nice spot in the planking should the old hose get off; and it may leak and slowly settle.

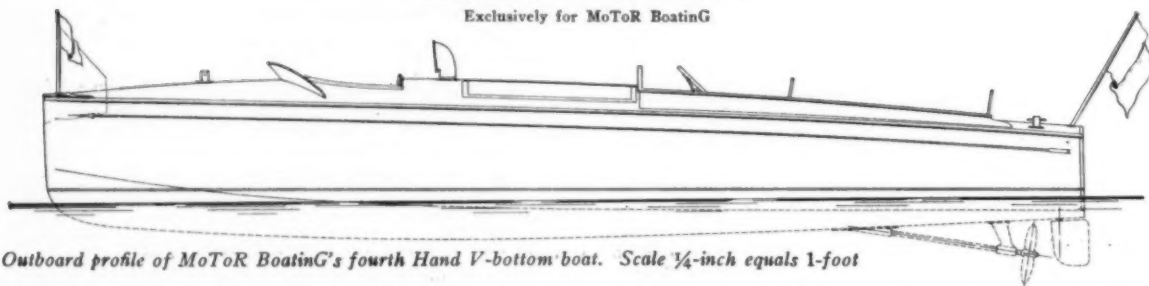
The spar, made of cedar (or pine) is extremely light, the straps on the end are so located that they will not stay against the boat and the buoy will not become water logged and sink, especially if kept well painted.

The choice now lies between the can and the spar, and

Dorothy, a Hand 25-Foot Runabout

Designed by Wm. H. Hand, Jr.

Exclusively for MoToR BoatinG



Outboard profile of MoToR BoatinG's fourth Hand V-bottom boat. Scale 1/4-inch equals 1-foot

OUR plans this month for the next boat in the famous series of Hand V-bottom boats are again in the form of a runabout. This one is the largest and fastest of the runabouts published thus far. This runabout with its 25 feet of length offers great possibilities to its proud owner and affords the maximum of convenience and comfort to be found in a boat of this size. The Model M Van Blerck motor in the four-cylinder size will provide ample power to drive this boat as fast as is comfortable.

The tremendous interest being shown on all sides in this series will receive an added impetus with these new runabout plans and readers in all parts of the country will await the publication of plans in their favorite sizes. There are still to be published brand new plans for cruisers up to 40 feet in length. Other plans for runabouts, a 35-foot auxiliary sloop and a 45-foot schooner will also be published later in the year at the rate of one each month.

The arrangement of Dorothy must follow conventional practice. A little cockpit is provided away up forward and a comfortable seat for two people is installed here. Next aft comes the motor compartment with its motor and all accessories. The helmsman's position is further aft and is one of the individual seats of the pair installed at the forward end of the main cockpit. Space for a pair of wicker chairs and a thwartship seat at the after end provide lots of seating capacity and comfort. Of course, this boat is not designed as a long distance cruiser, but ample facilities are provided for many comfortable day trips. The coming season holds many alluring trips. Prospects for cruising and enjoying the rivers and sounds were never better and boat builders all over the country are busy in an attempt to fill the demand for boats and more boats. These plans present an opportunity for countless enthusiasts to secure a boat designed according to most modern theory and practice.

To construct one of these boats it would be advisable to select a shed or building in which to undertake the work.

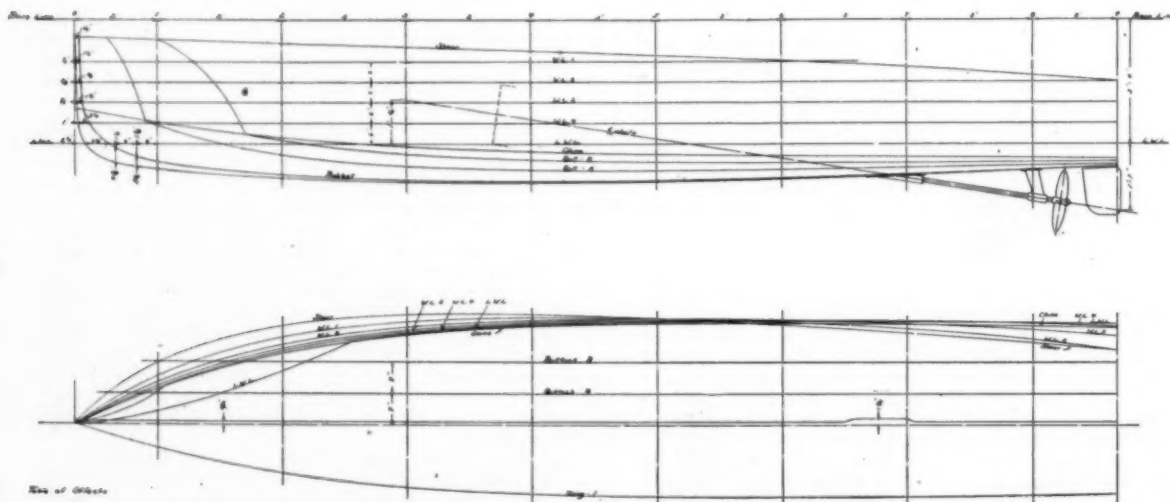
The weather is not always perfect, and if the boat is housed in, construction can be carried on irrespective of weather conditions and carried along to completion with greater dispatch.

As before, a description of the construction steps must involve a little repetition. But in order to make each article complete in itself, this must be done. Our first step will be the getting out of the frames. These should be all bent to form and prepared according to the lines in advance. Later these are all assembled and erected at station points and faired up. Much of the material can be gotten out and prepared from the drawings, the transom, deck beams, hatches, floor beams, flooring, decking and numerous other items can all be prepared in advance.

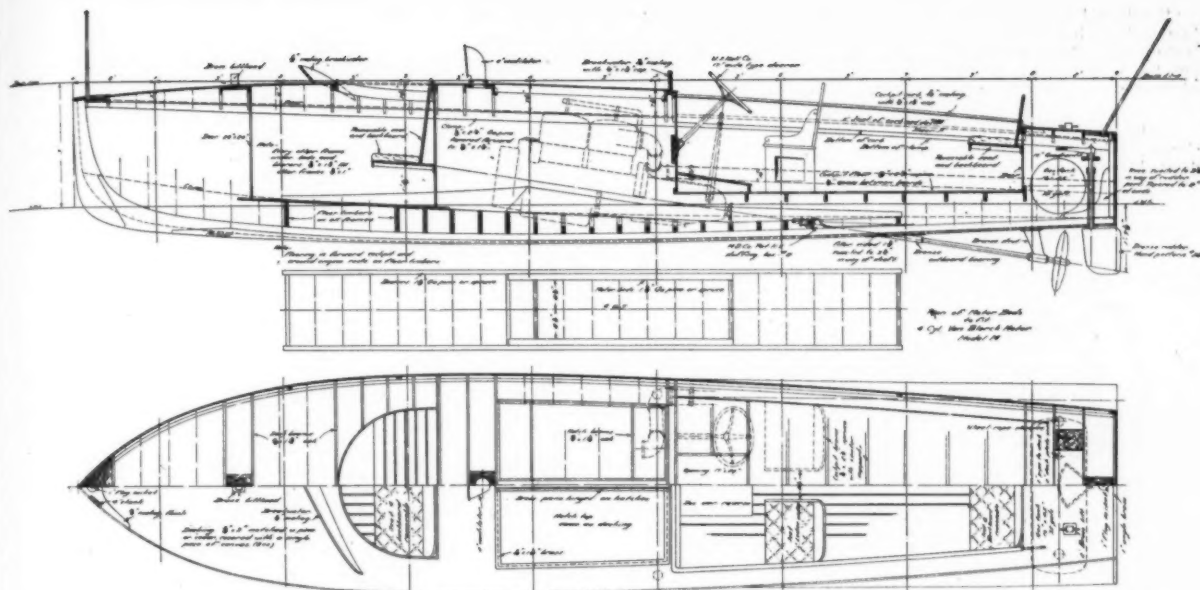
After the frames are all erected and fastened in place the next operation is the planking. A V-bottom boat is simple to plank as compared to a round-bottom boat. Spilings are taken as described before and the planks are sawn with a rip saw which is easily done. Planking is to be fastened to frames with copper wire nails riveted over copper burrs and further fastened to stem, stern, and apron with brass screws. Screw heads are counterbored and plugged. After planking is smoothed off and seams caulked and cemented it would be advisable to coat every part thoroughly with a coat of paint, both inside and out, except those which are to be finished in varnish.

Trim is put on as called for by the drawings and specifications and the hull rapidly assumes a completed form.

The installation of the motor, tanks, and accessories of one sort or another can then be undertaken in due time and before long the boat will be completed. Paint and varnish must not be neglected, numerous parts can be well painted long before they are assembled in the completed hull. Parts which are in contact with one another should invariably be well painted before assembly to protect the materials from decay at a later period. Many parts are inaccessible after



Complete lines in profile and plan of 25-foot Hand runabout. Scale 1/4-inch equals 1-foot



Inboard construction section and motor foundations with beam and deck plans of Dorothy, a 25-foot Hand V-bottom runabout. Scale $\frac{1}{4}$ -inch equals 1-foot

the boat is completed and unless protected before will have to go without.

As in the other plans published, the drawings and specifications are complete in themselves and contain all required information and data. These should be carefully followed in all details.

Specifications for 25-Foot V-Bottom Runabout Dorothy

Prepared Especially for MoToR BoatinG

By Wm. H. Hand, Jr., N. A.

New Bedford, Mass.

Dimensions

Length, overall, 25 feet; beam, 5 feet 4 inches; draft of hull, 11 inches.

Materials

To be strictly first class in every respect, all fastenings to be secure and complete.

Filler

To be of white oak, sided $1\frac{1}{2}$ inches and molded as shown, swelled to $3\frac{1}{2}$ inches at shaft hole.

Apron

Of clear Georgia pine in single length $2 \times 4\frac{1}{4}$ inches, bent to form, and securely fastened through floor timbers on heels

of frames with one $\frac{1}{4}$ -inch copper bolt riveted over clinch rings in heavy floors and one $\frac{3}{16}$ -inch copper bolt in light floors. To be fastened to filler with $1\frac{3}{4}$ -inch No. 10 brass screws spaced about 8 inches on centers. Stem, apron and filler to be riveted together with $\frac{5}{16}$ -inch copper rivets.

Stem

To be as indicated of oak or hackmatack, sided $1\frac{1}{2}$ inches and molded as indicated. To be rabbeted for planking and bearded to carry out all lines of same above L. W. L. To be fitted with a $\frac{1}{2}$ -inch brass stem band extending from head to about 18 inches below and aft of L. W. L. Same to be neatly filed to show as narrow a face as is practical at and near L. W. L.

Stern

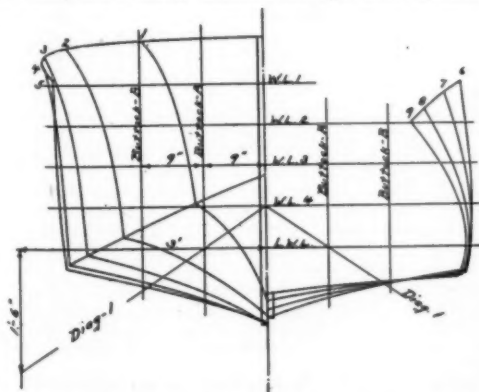
To be of cedar, double planked, total thickness $\frac{3}{4}$ inch, reinforced by center knee as indicated with reinforcing oak cleats for side and bottom planking, with intermediate side cleats of oak spaced in center of each half of stern.

Frames

All frames of white oak bent to form, spaced 8 inches on centers. Alternate frames under motor beds and motor bearers to be $\frac{3}{4} \times 1\frac{1}{4}$ inch, all other frames $\frac{7}{8} \times 1$ inch. Sawed oak floors on top of all frames to correspond to frame siding. Fastened to apron as above mentioned and to frames with No. 12 copper wire nails riveted over copper burrs.

Chine

To be as shown made up of two single length pieces of Georgia pine securely fastened together. There will be a No. 12 copper wire nail through both members of chine and each frame securely riveted over copper burrs.



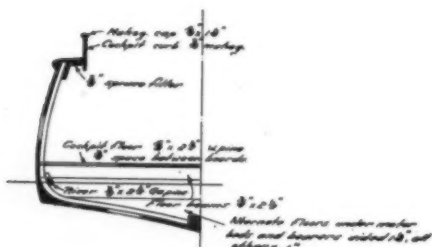
Stations	0	1	2	3	4	5	6	7	8	9
Sheer	0-0-7	0-5-5	0-6-6	0-7-7	0-8-0	0-8-3	0-8-6	1-1-7	1-0-1	1-0-0
Chine	2-1-5	2-6-5	2-10-2	3-0-7	3-5-1	3-5-0	3-3-2	3-3-5	3-3-7	3-4-1
But. A		2-6-4	3-3-1	3-6-8	3-7-9	3-7-5	3-7-1	3-6-5	3-6-1	3-5-5
But. B		2-10-7	3-3-0	3-4-5	3-5-0	3-5-2	3-5-2	3-5-1	3-4-6	3-4-6
Rabbit		3-5-0	3-6-7	3-10-3	3-10-6	3-10-3	3-9-9	3-8-4	3-7-2	3-6-2
Bottom P		3-7-1	3-7-6	3-10-6	3-11-1	3-11-5	3-9-6	3-8-3	3-7-3	3-6-3
Sheer		1-1-5	2-0-9	2-7-6	2-7-6	2-6-9	2-6-5	2-2-3	1-1-4	1-0-2
M.L. 1		1-1-6	2-1-1	2-7-5	2-7-0	2-6-3	2-6-5			
M.L. 2		1-0-0	1-1-1	2-0-0	2-6-0	2-6-2	2-5-2	2-0-4	1-0-2	
M.L. 3		2-10-7	1-9-7	2-3-1	2-5-4	2-6-0	2-6-6	2-6-0	2-3-1	
M.L. 4		0-8-2	1-7-0	2-3-0	2-5-0	2-5-7	2-6-0	2-5-7	2-5-1	2-4-2
M.L. 5		0-8-5	1-3-1	2-1-7	2-4-4	2-5-0	2-5-6	2-5-6	2-5-3	2-5-0
Chine		0-10-2	1-0-3	2-1-7	2-4-5	2-5-0	2-5-1	2-5-7	2-4-2	2-3-6
Rabbit		% swelled to 1 1/2" at shaft hole								
Diag. 1		0-6-5	1-1-7	1-6-0	1-7-7	1-8-5	1-9-2	1-9-0	1-8-3	1-7-7

Note - All dimensions given in feet, inches and eighths to the outside of planking
All heights given from Base Line

Sections of lines and tables of offsets for Dorothy, a 25-foot Hand V-bottom runabout. Scale $\frac{1}{2}$ -inch equals 1-foot

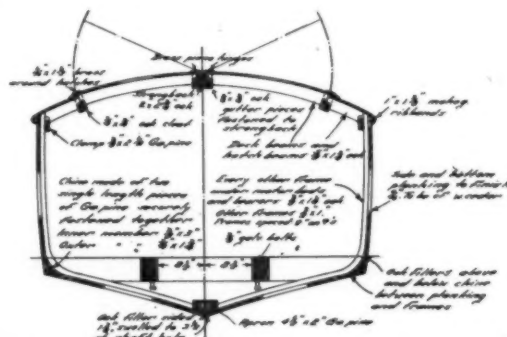
Of selected spruce, $\frac{3}{4} \times 2\frac{1}{2}$ inch, set as indicated, and securely fastened to heads of frames. To be reinforced in way of cockpit by indicated $\frac{3}{4}$ -inch spruce filler pieces to form backing for cockpit curb fastenings. Clamp to extend full length of hull.

To be of oak sawn to form on given crown. Heights as shown, sided $\frac{5}{8}$ inch and molded $1\frac{1}{4}$ inches, spaced as indicated with ends halved into clamps and securely fastened to same.



center. Forward motor compartment bulkhead to be of $\frac{1}{2} \times 2\frac{1}{2}$ inch white pine matched.

Forward seats to be of the divided type set as shown. To be arranged with hinged tops with lockers under. Sides to be of paneled mahogany. Tops of $\frac{1}{2}$ -inch and backboards of $\frac{3}{8}$ -inch mahogany. Neat arms of $\frac{3}{8}$ -inch mahogany support inboard ends of backboards. Aft seat set as shown with both seat and backboard removable. Seat made up of mahogany strips $\frac{1}{2}$ -inch thick with $\frac{1}{4}$ -inch spaces between. Backboard $\frac{1}{2}$ -inch mahogany.



The indicated bed plan fits a Model M four-cylinder Van Blerck motor. All parts of bed to be very securely fastened after being carefully fitted to bear evenly on top of floor timbers. Bearers and beds to be bolted together in addition to being bolted to floor timbers with galvanized 5/16-inch bolts and nuts.

All exposed edges of clamps, stringers, frames, chines, deck beams, etc., to be neatly finished with chamfered edges.

Bottom and side planking to be of selected white cedar to finish 9/16 inch thick. All butts to be made on blocks between frames. To be fastened to frames with No. 14 copper wire nails riveted over copper burrs and to stem, stern, and apron with 1½ inch No. 7 brass screws. Bilge edges to be neatly rounded, all seams to be lightly caulked with cotton, run with paint and payed with white lead putty. Apron and chines to be thickly coated with thick paint previous to setting planking in place, with planking fastened down while paint is soft. All screw heads to be neatly countersunk and banded.

To be of $\frac{3}{4}$ x 3 inch cedar or white pine, no beading, layed fore and aft in the usual manner and fastened into deck beams clamp and top strake with $1\frac{1}{4}$ -inch galvanized nails, with heads let in and puttied. Deck to be planed perfectly smooth, heads of nails covered with putty and entire deck to be covered with single piece of 8-ounce duck layed in shellac or marine glue and ironed down into place with hot flat irons. Edges to be hauled down over outer edge of deck and neatly covered by ribband rail when in position.

To be of 7/16-inch mahogany, fitted as indicated with rabbeted mahogany cap $\frac{1}{2} \times 1\frac{1}{4}$ inch. Fastened in place with $\frac{1}{4}$ -inch No. 7 oval head brass screws. Each side to be in single piece with fore end neatly and securely fastened as indicated. Edges to be neatly rounded.

To be located as indicated on spruce beams $\frac{3}{4} \times 2\frac{1}{2}$ inches with center struts and onboard edges secured to riser of $\frac{7}{8} \times 2\frac{1}{2}$ inch Georgia pine. Flooring to be of selected spruce strips $\frac{5}{8} \times 2\frac{1}{4}$ inches run fore and aft as indicated. Center section to be cleated together to be removable. Flooring in motor compartment the same, with removable sections to allow of getting at parts of engine properly. Forward cockpit the same.

Control bulkhead to be of matched chamfered mahogany, $\frac{1}{4} \times 2\frac{1}{4}$ inches, set vertically in the usual manner and backed by oak cross ties, securely fastened to frames. Bulkhead to be fastened with 1-inch oval head brass screws symmetrically arranged. Bulkhead at aft end of cockpit to be fitted and fastened in the same manner, with removable type door in

To be framed as indicated and specified on plan. Cross beams to be halved into fore and aft members and securely fastened. Top to be of 3/4-inch cedar or white pine, covered neatly with cloth like deck. Fore, aft, and outboard edges to be covered by a flat 1/16-inch brass strip 1 1/2 inches wide as indicated, to cover seam between deck and hatches and center lap. Oak cleats as indicated and provided with suitable gutters to carry leak water to be fitted as shown. To be hung on 1/2-inch brass piano hinges as shown.

Indicated ribband rails to be of mahogany, $1\frac{3}{8}$ inches in half round section fastened as indicated with screws properly let in and bunged with bungs of same material as rail. Fore and aft ends to be neatly tapered and rounded.

All parts of hull outside and all exposed surfaces inside to be carefully planed off smooth and thoroughly sandpapered to give a perfectly smooth finish. All work to be done to the satisfaction of the owner and all details of hull wood-work are to be complete in every respect. Work not herein specified, but that is shown on the drawings or is manifestly necessary to complete the boat in a workmanlike manner, to be done by the builder without extra charge.

Rudder: The rudder will be a Hand pattern No. 381 with manganese bronze blade, Tobin bronze stock 1 3/8-inch diameter, 10-inch bronze quadrant, brass port threaded keel with stuffing box at top as indicated. The stock will be supported at top under quadrant by 7/8x5 inch oak cross tie secured to hull at sides and provided with light struts to hull each side of stock. To carry weight load of rudder as well as side strains.

Sheaves: Sheaves for wheel rope to be of vertical pattern fastened where indicated not less than 3 inches in diameter.

Stuffing Box: To be Mechanical Devices Co. pattern K. S. bronze to fit shaft, fastened on apron with 1¼-inch No. 14 brass screws.

Strut: To be a bronze casting of single arm type, Hand pattern No. 381 properly babbitted for shaft. To be fastened through apron with six 5/16-inch brass stove bolts with nuts inside and countersunk heads in plate.

Steerer: A 17-inch wheel fore and aft controls, scored drum auto steerer properly fitted on starboard side of bulkhead and connected with rudder quadrant by $\frac{1}{4}$ -inch diameter Phosphor bronze tiller rope led over 3-inch Hand wheel rope sheaves and through suitable guides at sides.

Tank: Gasoline tank to be seamless tinned steel 16-inch diameter by 45 inches long, set in a suitable strong cradle as indicated. Tank to have two swash plates. To have feed to carburetor through $\frac{1}{4}$ -inch up-feed-tube, 2-inch filler piped to deck plate.

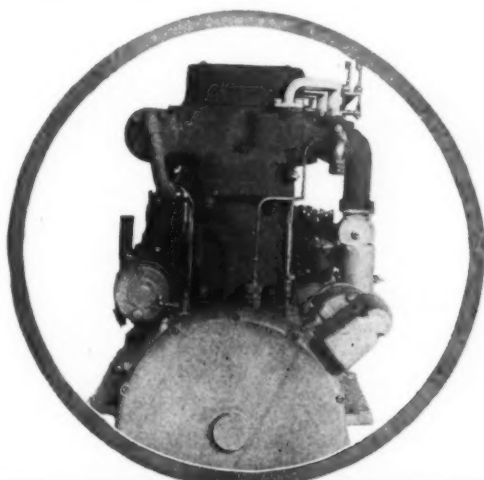
Bits: A brass bitt head to be fitted on forward deck where
(Continued on page 140)

(Continued on page 140)

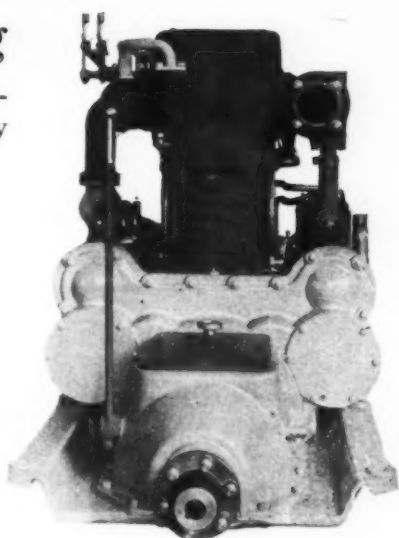
Dual Valve-in-Head Sterling

The Very Latest in High Class Marine Engines is Announced as Model G R by the Sterling Engine Company

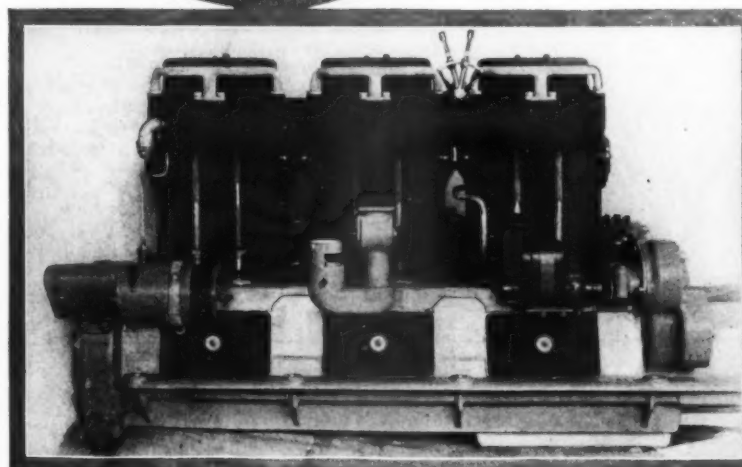
IN line with their policy of supplying the most modern equipment, the Sterling engineers have produced this new Model G R racing engine. The latest practices and developments in this fertile field have been introduced into this engine, and it is confidently expected that new marine history will be created with this motor. Experimental models



View of the after end of the new Sterling Model GR showing the substantial nature of the one-piece base casting



The forward end has the flywheel enclosed as this view shows



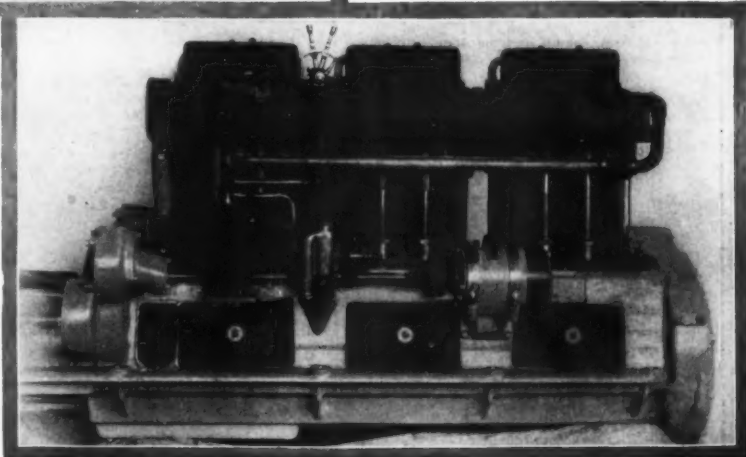
Port side of motor showing carburetor and magneto as well as the distributor

on tests stood up splendidly under prolonged trials with no traces of faults or weaknesses.

The G R engine is not a lightweight, but is designed for and capable of sustained high-speed effort. Its weight will run from eight to nine pounds per horsepower. On account of the generous use of drop forgings for all essential parts, forged from high-grade steel, it has been possible to reduce the weight to a minimum.

On a bore of $5\frac{3}{4}$ inches and a stroke of $6\frac{3}{4}$ inches, these engines will deliver

Oil strainer, electric starting and generating auxiliaries and valve gear for the overhead valves are plainly visible



over 150 h.p. in the four-cylinder size. Six and eight cylinders will produce over 225 and 300 h.p. at 1,500 r.p.m. There is some margin in excess of these figures, as they will turn up to 1,600 without difficulty; in fact they have been driven at 2,000 r.p.m. for long periods on test, although speeds in excess of 1,500 to 1,600 are not recommended on account of losses in propeller efficiency.

Radical departure from general practice are the dual intake and exhaust valves located in a detachable cylinder head. These innovations are not entirely new; dual valves were used five years ago in the Model F 300 h.p. motor, and overhead valves have been used for over eight years in all Sterling racing engines. Ignition will be by distributor and two-spark magnetos.

By carefully routing the circulation water first through the oil cooler, then through the exhaust manifold, then the cylinder jackets and finally the intake gas manifold, giving up much of its heat to the incoming mixture, an unusual fuel efficiency is obtained. This averaged .51 pounds of fuel per brake horsepower hour on careful tests, and equals or exceeds the best known economy tests on gasoline engines.

Splinters from the Log

By Harry A. Patterson

PROLOGUE

Launching of these Chance Channels of Chatter means something new. Whether it is to be a new page of pleasure and profit or an old waste of paper and patience—you're the judge. Be tolerant a bit—we strive to please. Let's shove off.

A SPRING LINE

*Paint, putty, brushes, varnish,
Elbow grease removes tarnish,
Gaskets, plus, new timing gear,
Fix her up—SPRING IS HERE!*

And we heard an old man of the sea say a while ago, "Boats will be safer this year, salt water and liquor don't mix." Personally, we'll have to take his word for it—seems a pitiful waste.

The meanest man on this mundane sphere told his wife she might buy a motor boat since she wanted one so badly. But, he cautioned her not to buy one whose engine had one of those dangerous carbureters.

Did you see the misplaced shipping news caption on one of the New York dailies' obituary notice column? Of course it read, "Passed Through Hell Gate."

But even that will scarcely compare with the Lyric Theater billboard during the New York Show, which shouted forth, "The Chorus Outstrips Them All."

EENY, MEENY, MINY, MO

We hear there are 350,000 motor boats in the U. S.

Wonder if that includes the boat up river that some man left to the whims of ice for the winter? About now bet its cabin is being used as an administration building for a school of fish.

SMALL STEAKS

Some day, under this caption, we're going to work up a wheeze. The material at hand seems to be a man with a handful of toothpicks coming out of a restaurant on his way to a poker party.

THE HEAT AT MIAMI

(by Splinters Air Photographer)

○
○ =

Photograph was obtained at great expense from a large altitude. The two hydroplanes are shown neck and neck as they are about to pass the finish buoys and judges' boat. Other unusual photos will appear from time to time.

It is about time for High Officials in the Public's Employ (nickname) to stop their prohibition laments and get down to b. t. Their minor offenses seldom disturb us, but now they make us right mad with their gingeraillery.

And just as we are about to cast off for our maiden trip in MoToR BoATINg, someone kindly slams us by asking why column navigation is harder than doing a real day's work. We snub up with a reply that it is as crullers to doughnuts—there's an end to a cruller.

Then he came down on the wind with, "Very perhaps, young man, but your figures of speech need auditing."

Bon voyage.

AIDS TO NAVIGATION

When approaching a steamer in a narrow channel and you have the right of way, it is always advisable for you to present said right of way to aforementioned steamer before she takes it.

Experienced mariners have found that the compass should not be lodged beside the exhaust pipe when navigating in a fog.

A match is more serviceable for finding a mooring buoy on a dark night than a searchlight that won't work.

ENGINEETTES

Dry batteries should not be placed in the bilge for safe keeping.

After a few minutes of cranking in an effort to make your engine commence, it is considered rather good form to engage the switch.

Water in an oil can is almost never used by experts for priming.

A proper mixture of air and gasoline is a far better fuel for balky engines than air and oratory.

LOGARISMS

J. Daniels (U. S. N.), the w. k. yacht broker and advertiser, has been courting official business of late.

"Tea" L. (windjammer), is expected as a welcome and disappointed visitor to these parts during the s. mos.

A genial fisherman and arch. of New Bedford says he has had a hand in the designing of several boats for the coming season and predicts an era of p. for U. S.

Mr. Cricqui, who owns a motor shop up in Buffalo, is quite busy, he reports.

"Jawn" Hacker is putting balanced daahb'ds on his craft, he p. with p.

The pop. ed'r of the Nat. Mag. of M'R Boat'G was in N.Y. during the past w'k on business.

Mr. Wood, of Detroit, is thinking of enlisting the aid of the Pullman Company for to find names for his 1920 flock of boats.

Several USNRfers expect to enjoy a few weeks vacation on the br'ny d'p this summer as guests of their uncle.

THE QUESTION CORONER

(Owing to the great mass of people who wish to take advantage of the Coroner, it has been found advisable to request postage (unused) be sent with questions. The service is free to readers of Splinters and we dare them to take advantage of it.—EDITOR.)

F.O.B., Hannibal, Mo.—Please tell me something of the engine I just bought. It has a heavy wheel at one end. I know all about the engines in petroleum wagons.

ANS.—If your engine has two cylinders, the firing order should be: 1, 2; 1, 2; etc. Congratulations on knowing all about fire chariots, do you own a harried henery?

W.W.W., Galveston, Tex.—Will you please answer in your department the suitable decorations for a small cruiser to be used for a honeymoon?

ANS.—This is beyond the scope of the department, but we would suggest a wife.

Lt. A.V.D.P. (U.S.N.), N.Y.—Is Long Island Sound considered safe for a fifty-foot cruiser? Please expedite.

ANS.—Yes, ————— Sir.

P.Q.D., Salem, Mass.—What shall I do before coming to a draw-bridge I wish opened?

ANS.—Buy provisions for several days and polish your vocabulary.

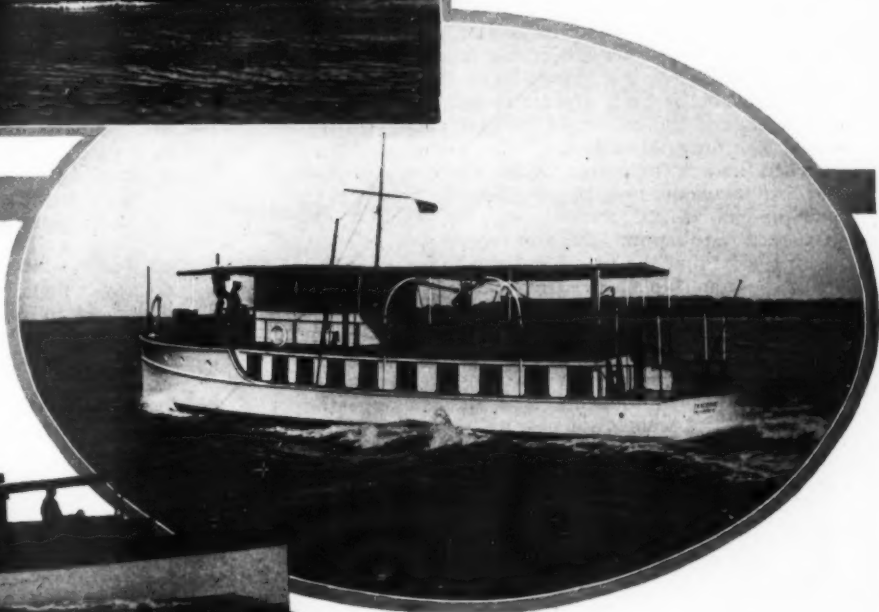
Some New Yachts

Examples of Recent Construction Just Completed at the
Yards of the New York Yacht, Launch & Engine Company

Photographs by
Edwin Levick



Captain Jack, a substantial 62-foot by 16-foot sea-going commercial craft which recently went to Nova Scotia where it is now engaged in the fishing industry. The power plant is a four-cylinder 60 h. p. Twentieth Century motor



Tanguingui, a large size comfortable houseboat of the newer type owned by J. C. McCoy, of Providence, R. I. She is 63 feet 6 inches long by 16-foot beam and is powered with a pair of four-cylinder 40-50 h. p. Twentieth Century motors



Roslyn, A. L. Kerker of New York City recently took over this 54-foot cruiser in which he intends to take extensive trips

Lady Warwick, a twin-screw installation of six-cylinder 65-75 h. p. Twentieth Century motors drive this sizeable yacht with an exceptional turn of speed. Her owner, S. M. Nicholson of Providence, R. I., is well pleased with her



Making a Clean Sport Cleaner

Do the Owners of Fast Boats, Whether Tenders or Express Cruisers Realize the Discomfort, the Danger, and Damage Done by Running Through the Fleet at Full Speed

By F. T. Lander

WHEN the automobilist attempts to shoot through a crowded thoroughfare at top speed he is promptly arrested, taken to court and fined; for there is a law which prohibits such foolhardy actions. To apply this ruling to the yachting game would be difficult to accomplish, yet if the offending motor boatman could be similarly treated a benefit of considerable value would then result.

We call our sport clean. Of course it is, for does not water play a most important part, but boating, clean as it is, could be made more so by eliminating, to a greater degree, the quality of selfishness. We are all more or less selfish. We would not be human perhaps if such were not the case, but there are extremes to which this trait may be carried. Most of us know the man who deliberately enters a crowded harbor, pilots his way at full speed in and out among the assembled fleet, and with a wild look of glee tries to see how close he can shave your craft without actually hitting her.

These antics are by no means confined to the speed launch; for the high-powered cruiser, not to be outdone by her smaller sister, frequently takes a fling at the game herself. She is the star flinger of them all. Everything movable is flung right and left. Nothing seems proof against the onslaught of that young tidal wave which she drags after her.

Then there is the power tender which races back and forth at a twenty-mile clip between the palatial yacht and the club wharf. Even though the owner imagines it necessary to be put ashore in record time, it does not seem logical that the paid hand should always consider his duties on shipboard so extremely important as to cause him to return in like fashion.

These mad rushes somehow seem more frequent at meal times—just when you have everything all ready to fall to. Things do fall, and not infrequently some damage is done that is difficult to repair; but annoying as this may be, it becomes a matter of considerable concern when a drive is made just at a time when you are

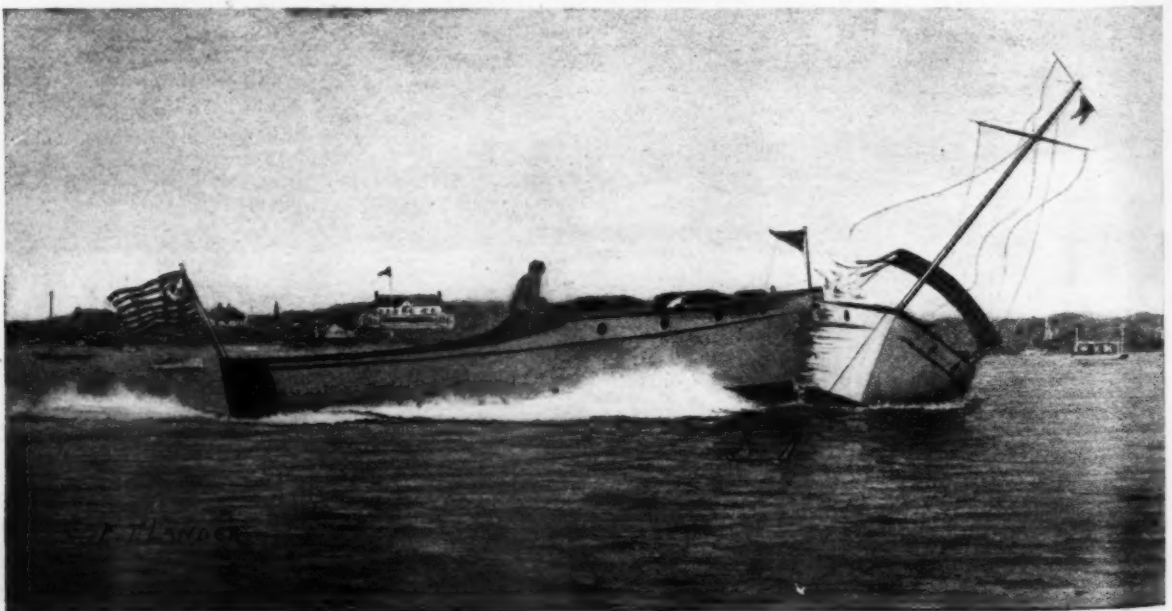
transferring a boat load of folks to or from the dink. If the dink is not swamped it is fortunate, and if someone is not pitched overboard it is still more fortunate, for many a person has not fared so well.

Now, there are times when the owner of the fast boat regards such doing as a lark—something in which he desires his friends to participate; for, as they all glance back to observe the results, you detect the look of satisfaction written on their faces. Surely a man of this calibre is incapable of grasping the simple rudiments of common decency, for the idea of playing the game in a fair and clean manner seem foreign to his make up. Therefore, perhaps he should be pitied rather than condemned for being such a short sport.

But there is still another phase which must be considered. Suppose something should let go on one of these craft so as to cause the helmsman to lose control, thereby creating a collision. No matter how skillful the man might be, the result would in many cases prove fatal, for the force exerted by even a light speed boat going at a fast clip is infinitely greater than what is commonly supposed. Fortunately there have been few such mishaps, but death has taken its toll, and with the increased demand for boats of greater power, many of which are piloted by men without previous boating experience, it would seem that the accidents resulting from this cause should take an upward curve.

It is a desire to "show off" that prompts many boat owners to dash about with such abandon; but little do they realize how well they are succeeding, for the ignorance displayed as to the principles of good seamanship is often most startling. There are other men who seem entirely oblivious to the annoyances they create, strange as this may seem, but stranger still is the fact that occasionally the old hand puts it across, although he thoroughly realizes the unfairness of it all.

In other words, let's look out a bit for the other fellow, for do we really need to get there quite as quickly as we imagine?



The end of a perfect day. An ever-present possibility when running at full speed through a fleet at anchor

TRAP

SHOOTING

for Motor

Boatmen

Conducted by Wm. M. Eldridge



Members of the West End Gun and Boat Club prove that all weather is good weather for boatmen.

Almost Ready to Celebrate its First Birthday

South Norwalk, Conn., is the home of the Western Gun and Boat Club. While only an infant so far as date of existence is concerned, it is growing into a club which deserves attention. Starting with only a few members, it grew gradually until now four to five full squads shoot regularly each week, with an abundant sprinkling of visitors from the neighboring country.

Among its members one finds the American boatmen, keen for everything and every sport which will bring them to their favorite stamping ground, the boat club. If the saying "practice makes perfect" holds good and if the scores of the various members keep improving at the rate they have been, the time is not far distant when the Western Gun and Boat Club is going to be an important factor and one to be watched when the Yacht Club Trapshooting League, which is just being formed, starts to hold its tournaments.

Motor Boatmen Enjoy Rare Treat

Visitors to the New York Motor Boat Show were given an unexpected treat through the courtesy of Tom Davis at the Sportsmen's Headquarters of the Winchester Arms Company. Readers of MoTOR BOATING were invited to visit Sportsmen's Headquarters and were given an opportunity to look over sporting paraphernalia of every description and dear to the heart of the lover of the outdoors.



Tom Davis of the Winchester Arms Co., who did much to make pleasant the visit of boatmen to the N. Y. Motor Boat Show

On the closing day of the show Mr. Davis prepared an entertainment at which many of the flag officers and members of visiting yacht clubs were entertained. It was rather in the nature of a surprise, for the moving pictures that were shown on this occasion will long be remembered for their interest. From every indication and from the letters that we have received it looks as though visiting yachtsmen in New York had found a clubhouse where they could sit in comfort and talk yachting, shooting, fishing or anything in the sporting line they can think of.

Mr. Davis has again asked us to cordially invite all motor boatmen to make use of Winchester's splendid quarters.

A Word of Advice to the Novice

For the many readers of MoTOR BOATING who have shown their interest in trapshooting, and their intention of taking up the sport, we are fortunate in getting some advice and instruction from our friend, Jack Fanning. Those who know him need hardly be told of his popularity. To those who do not we take pleasure in introducing Jack Fanning of the Du Pont Company, former holder of the world's long run of 231 straight kills, which score he made in Utica in 1900, shooting in a blinding snowstorm. Holder of the Madison Square Garden Roof record of 175 straight kills. He has a record of 96 out of 100 (50 double birds) made in 1901. Scored 104 consecutive kills at live pigeons in 1897. A member of the all-American team of 1901 which defeated the best shots of the foreign world.

Acknowledged America's premier coach at trapshooting. At fitting shotguns for those who wished to succeed he has no peer.

His words of advice are but few. "Get a



A squad of the New Rochelle Yacht Club

gun, single or double barrel (full choke preferred) that fits. The stock must be of the right length without too much drop or crook, as the target on leaving the trap travels upward."

Position at trap: Stand facing the trap so that the body is about three-quarters square posture to the center of the trap house. Keep both feet resting on the ground or platform. Pitch the body slightly forward with the left knee slightly back. This is to allow free and easy swinging motion of the body from the waistline. Grasp the gun fairly firm in the right hand, with the forefinger resting lightly on the trigger. The butt of the gun should be placed well inside of the shoulder-joint and not out on the arm. Cheek should rest firmly on the stock of the gun. Keep both eyes open, sight along the top of the gun barrel and be sure that you get the sight full at the muzzle of the gun. The gun should be held so that the muzzle is pointing at or a little above the center of the highest edge of the trap house roof. After calling "pull" and the target starts on its flight raise the muzzle of the gun upward until it reaches the target (its lower edge) and pull the trigger while the gun is in motion.



Jack Fanning of the Du Pont Company, an old friend of every shooter

The St. Lawrence River Yacht Club at Alexandria Bay Invites all Trapshooters

The St. Lawrence River Yacht Club in addition to being a leader in yachting circles is also one of the top-notchers in the trapshooting field. Its modern two-story clubhouse is complete in every detail. The grounds around the house are without question one of the most beautiful sites in the country. Arrangements have already been made for holding three tournaments on the club grounds during the coming summer, and an invitation is extended to all members of gun and yacht clubs to participate. An open invitation has been extended to any boat club to make use of these beautiful grounds absolutely free, with no strings attached, at any time. A good many clubs desiring to hold large tournaments, and who have not as yet obtained sufficient equipment or room to stage a large tournament, are heartily welcome to the use of these grounds. If secretaries of clubs will communicate with MoTon BOATING we will be glad to make arrangements for a tournament.



Trap No. 3, St. Lawrence River Yacht Club. Directly opposite the island in the distance is the starting point of the Gold Cup Motor Boat Races

The beginner should start practice on targets thrown straight away from him, as they are the easiest, inasmuch as there is no calculation only as to elevation, which is so important a factor in clay-bird shooting.

Concentration is one of the greatest aids to become proficient in this sport.

The vital points to be observed are—Getting a gun that fits.—Never lift the face off the stock of the gun after giving the signal pull to release the target.—Never stop the swing motion of the gun while shooting at quarter targets. Endeavor to learn to swing the body from the waist when shooting at quarter targets to right or left.—Concentrate on every target and try to make every shot a "kill".

Jack Fanning has prepared in detail a valuable article on "Trapshooting" which we will be pleased to send to any club or shooter upon request.

At the Traps with Pete Carney

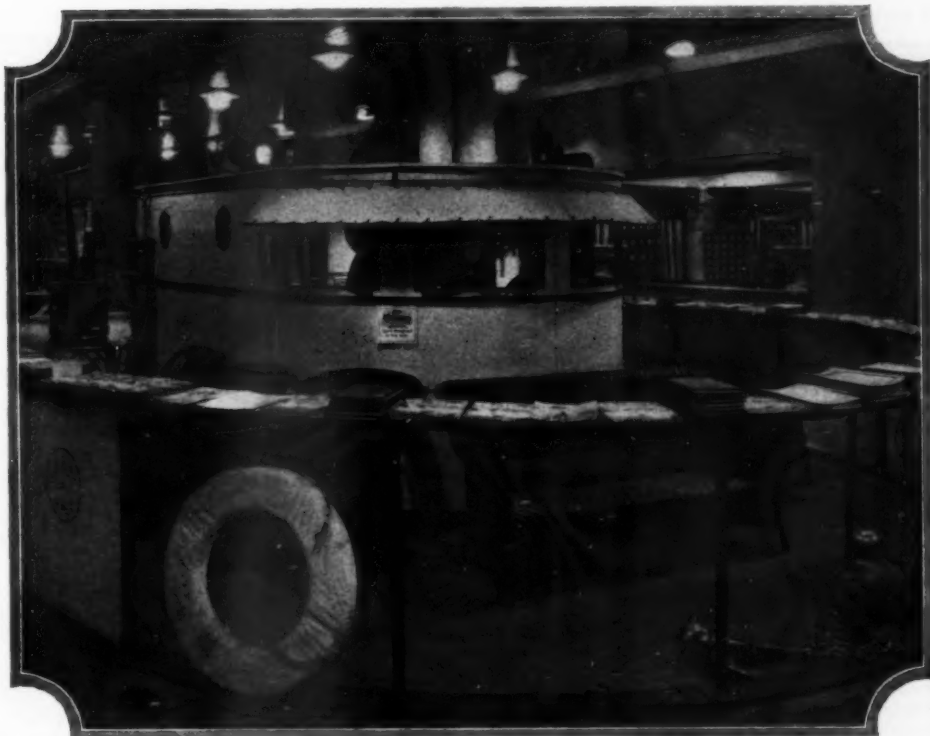
THE United States will be represented in the 1920 Olympic games by the greatest exponents of shooting in all the world.

Just who will represent the United States on the trapshooting, rifle and pistol teams during the period of July 22 to July 31, is something that is yet to be decided; but we have a fairly good idea who four of the representatives of Uncle Sam will be in the trapshooting competition. These four are: Mark Arie, of Champaign, Ill.; Woolfolk Henderson, of Lexington, Ky.; Frank M. Troeh, of Vancouver, Wash., and Frank S. Wright, of Buffalo, N. Y.

A number of plans have been advanced for the selection of the various shooting teams, but none have proven satisfactory. (Continued on page 68)

Yard and Shop

Notes of Interest to Both Owner and Manufacturer



MoToR BOATING's handsome booth at the New York Motor Boat Show. Designed and built by the Engineering and Art Departments of MoToR BOATING. The necessary materials were procured from the following prominent firms: Atlantic & Pacific Mfg. Co., cushions; L. C. Chase & Co., leatherwork; Chas. Cory & Son Co., electrical fittings; Seth Thomas Clock Co., marine clocks; Topping Bros., marine hardware; Valentine & Co., paints and varnishes; Wm. P. Youngs & Bros., lumber

Mayhew Steel Products Acquire a New Plant Location

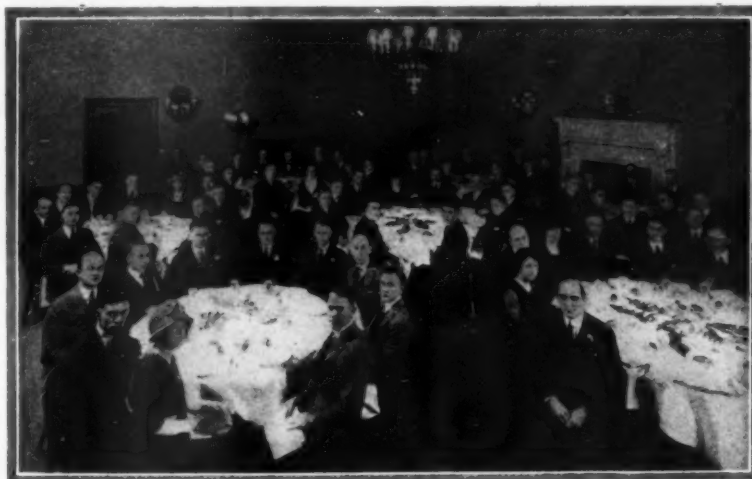
A SITE at Hopewell, Va., formerly used as a guncotton plant by the DuPont de Nemours & Company has been acquired by the Mayhew Steel Products, Inc. It is intended to use this plant for the manufacture of mechanic's hand tools and complete tool kits. A new building is to be erected and about 100 skilled mechanics will be constantly employed.

N'Everthin

The 28-foot runabout which won the displacement racer championship at the Miami Midwinter Regatta and set a new twenty-mile official A. P. B. A. record of 35.1 miles per hour is the

same little boat which performed so wonderfully at Detroit last summer. Owing to some technicalities the performances made at Detroit were not recognized as official and the speeds, although correctly timed over surveyed courses, were not accepted. The Hall-Scott motor in this boat is the first

marine engine turned out by the Hall-Scott company, which speaks very well for these motors. We We, which finished second in both the displacement races, is practically a duplicate of N'Everthin and a stock runabout in every particular. She is fitted with the double cockpit, which is gaining in popularity continuously.

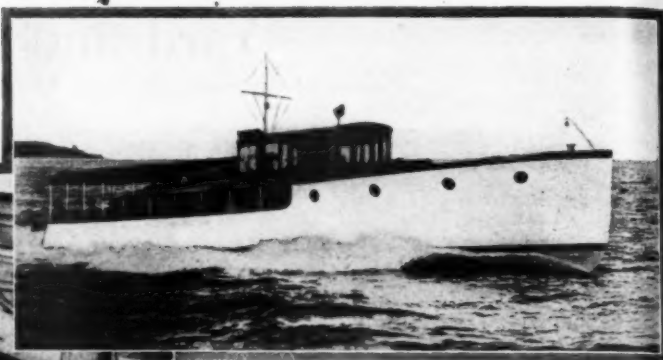
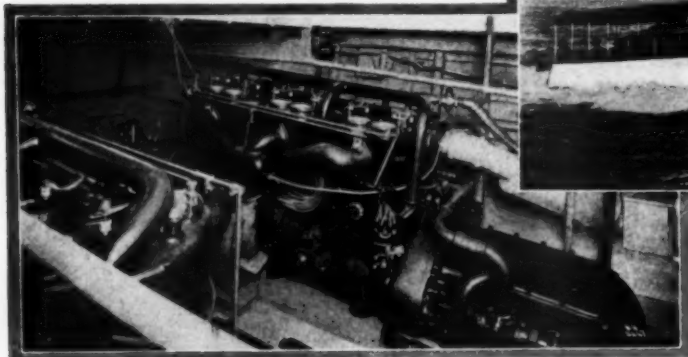


Circulation salesmen of the International Magazine Co., in convention at the Hotel Pennsylvania, March 15-20, 1920

Many International's Sold at Show

As a result of the first public appearance of the International Thirty-Two at the New York Motor Boat Show over fifteen of these popular boats were sold. This is very gratifying to the International Shipbuilding & Marine Engineering Corp., of Nyack, N. Y. and serves to confirm their belief in the standardized stock boat idea.

This 54-foot Great Lakes express cruiser recently completed a most successful trip from Milwaukee to Florida in twenty days. Stops were made at all points of interest en route. The engine-room equipment consists of a pair of six-cylinder Van Blerck motors which drive the boat at 24 miles. A one-man controlled high-speed boat, with accommodations for eight persons and a crew of three.



When the warm boating weather really arrives they are expecting a flood of orders and a large number of these cruisers are now on the way through the works in anticipation.

Barker Motors

The Barker Factory, Norwalk, Conn., manufacturers of the well-known Barker two-cycle motors, call attention to the fact that their motors and parts for same are now carried in stock in both New York and Boston.

Topping Brothers, the largest marine hardware dealers in New York, are New York distributors for Barker motors, while The Toppan Company, 101 Haverhill St., Boston, have recently been appointed distributors for Massachusetts.

Boat owners will agree that these two important links in the Barker sales and service chain could not be in better hands. A full stock of spare parts will be carried.



The latest photograph of C. A. Criqui, president of the Sterling Engine Company. Being of a reticent disposition, his assistants neglected to ask him permission before sending out the picture. His efforts are responsible for the prominent position which the Sterling Engine Company holds in the motor world. The present Model GR is a result of his experiments and this motor has been designed and perfected to meet any and all criticism.



Unusual service rendered by Kermath marine motors. A tractor plow built at Keene, N. H., was successfully used to free the street car lines of ice and snow after the recent storm.

Valspar on Boats

The best protection for your boat is a good coat of varnish on all bright work. Better still specify Valspar instead of just varnish. Guaranteed to be quick drying, durable and won't turn white. It is the best protection that money can buy. Another product by the makers of Valspar is their Bronze Bottom Paint. This is durable, anti-fouling and easily applied. Valspar is also made in colors and white.

Carlyle-Johnson Reverse Gears

Among the earliest manufacturers of enclosed marine reverse gears will be found the Carlyle-Johnson Machine Company. Away back in 1904 they began to produce and manufacture these gears and have steadily improved them, until today they are considered to be among the finest gears to be had. Another company, recently organized has laid claim to the title of pioneer builder of enclosed reverse gears. This is strenuously opposed by the Carlyle-Johnson Company, who have all their old catalogs and advertising records available to prove their claim.

(Continued on page 64)





Another winner—and she's Valsparred, of course!

The *Ethel VII*, of Muscatine, Iowa, is the fastest boat in the country in her class.

With her owner, Charles P. Hanley, at the motor, and Mrs. Ethel S. Hanley at the wheel, the *Ethel VII* has been a consistent winner at all the Valley Association Regattas for three years.

"The boat," says Mr. Hanley, "is finished

throughout with Valspar, which makes not only a very beautiful but also a *lasting* finish."

Our booklet, "How to use Valspar on Boats," is full of useful varnish and paint tips. We will send it to you on request.

VALENTINE & COMPANY

Largest Manufacturers of High-grade Varnishes in the world—Established 1832

New York Chicago Boston Toronto
London Paris Amsterdam

W. P. FULLER & CO. Pacific Coast



VALENTINE & COMPANY, 456 Fourth Avenue, N. Y.
Special Offer:

For your dealer's name and 15c in stamps, we will send you a 25c sample can of Valspar—enough to finish eight square feet of surface. Fill out Coupon.

Dealer's Name.....

Your Name.....

Your Address

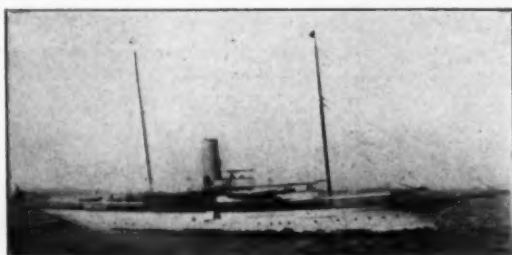
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Naval Architects
and
Yacht Brokers

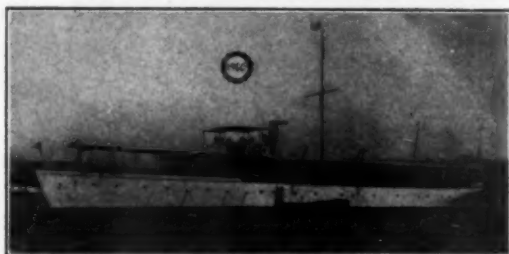
COX & STEVENS

15 William St., New York
Telephone—1375 Broad
Cable—BROKERAGE

We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request.



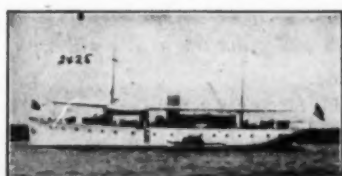
No. 71—For Sale—200 ft. seagoing steel steam yacht. Lloyds highest rating. Cox & Stevens, 15 William Street, New York.



No. 1466—Particularly desirable 140 ft. twin screw steel cruising power yacht; speed up to 18 miles; two 300 H.P. Standard motors; dining saloon and social hall on deck; 3 double and 1 single staterooms, 3 bath and toilet rooms, etc. Recently overhauled thoroughly at large expense; in splendid condition. Further particulars, from Cox & Stevens, 15 William Street, New York.



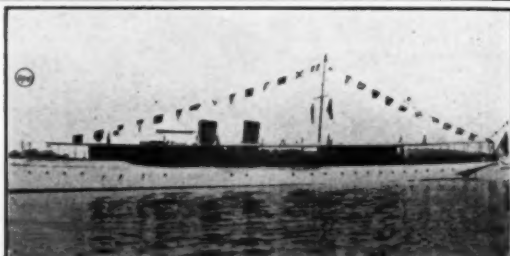
No. 2026—For Sale or Charter—Twin-screw cruising power yacht; 107 x 18 x 5.3 ft. Speed 11-12 knots; 75/90 H.P. Standard motors. Four staterooms, deck, dining saloon, bath and two toilets, etc. Recently completely overhauled at large expense. Cox & Stevens, 15 William Street, New York.



No. 2425—For Sale or Charter—Twin-screw cruising power yacht; 90 x 16.6 ft. Speed up to 12 1/2 miles; two 6 cyl. 60/90 H.P. motors. Excellent accommodation. Cox & Stevens, 15 William Street, New York.



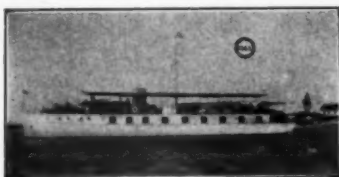
No. 1771—For Sale—Cruising power yacht; 81 x 12 x 4 ft. Speed up to 15 miles; 6 cyl. 100-120 H.P. "20th Century" motor. Dining room, three staterooms, toilet room, etc. Cox & Stevens, 15 William Street, New York.



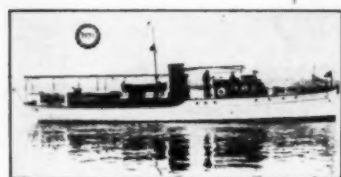
No. 3047—For Sale—Particularly attractive 165 ft. fast oil-burning, twin screw, steel steam yacht. Speed up to 19 miles. Beautifully finished and furnished. Large accommodations include dining saloon and music room on deck, six staterooms and three bathrooms below aft. Cox & Stevens, 15 William Street, New York.



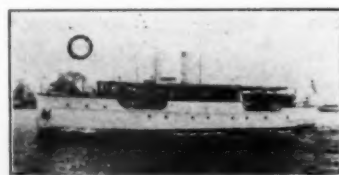
No. 1796—For Sale or Charter—Very roomy, twin-screw cruising power yacht, 99 x 17 x 4 ft. Speed 13 to 15 miles; Standard motors. Large dining saloon, six staterooms, three bathrooms, all conveniences. Cox & Stevens, 15 William Street, New York.



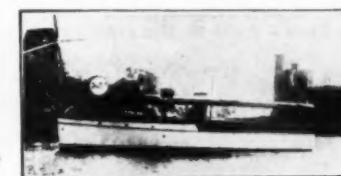
No. 1002—For Charter—Attractive 90 ft. twin-screw gasoline houseboat; speed 10-12 miles. Large saloon, four staterooms, two bathrooms; all conveniences. Handsomely furnished. Cox & Stevens, 15 William Street, New York.



No. 3533—For Sale—Fast 72 ft. twin-screw cruising power yacht. Speed up to 17 miles; two 6 cyl. 125-150 H.P. Winton motors. Dining saloon, two double staterooms, bath and two toilets, galley, etc. Price, etc., from Cox and Stevens, 15 William Street, New York.



No. 3538—For Sale—Very roomy power yacht; 72 x 16.5 x 3.11 ft. Built 1917. Speed 10-11 miles; 75 H.P. motor. Main saloon in deckhouse, dining saloon below, three double staterooms, bath and two toilets, galley, etc. Large deck space. Price reasonable. Cox & Stevens, 15 William St., New York City.



No. 3678—For Sale—Bridge deck cruiser, 58 x 13 x 4 ft. New 1916. Speed up to 12 miles; 50 H.P. Standard motor. Dining saloon containing two pullman berths, two double staterooms, two toilet rooms, galley, etc. Cox & Stevens, 15 William Street, New York.



No. 1937—For Sale—Attractive 65 foot cruising power yacht. Speed up to 12 miles; 60-80 H.P. motor. Two saloons with two berths in each, double stateroom, bath and toilet room, galley, etc. Price reasonable. Cox & Stevens, 15 William Street, New York City.



No. 3607—For Sale—Fast triand v-bottom day cruiser, 45 x 10 x 3 ft. draft. Built 1918. Speed up to 20 miles; Sterling motor. In excellent condition. Cox & Stevens, 15 William St., New York City.

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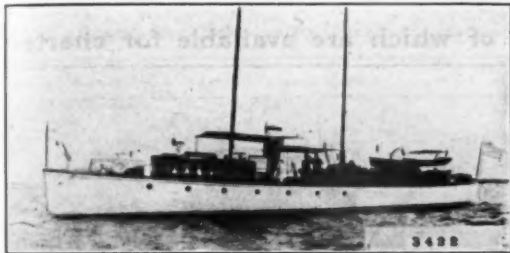
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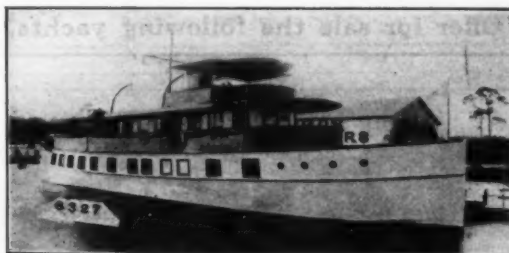
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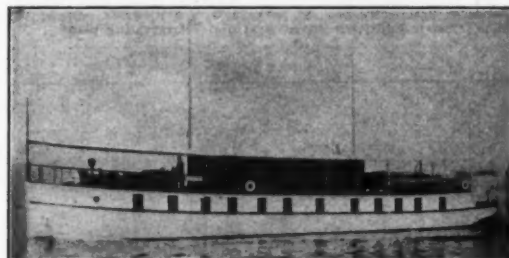
No. 3422—For Sale—Desirable 94 foot twin-screw steel power yacht. Deck dining room. Two double staterooms, bath and two toilets. Hot water heated. Standard engines. Speed 12 to 14 miles. Price reasonable. Henry J. Gielow, 52 Broadway, New York City.



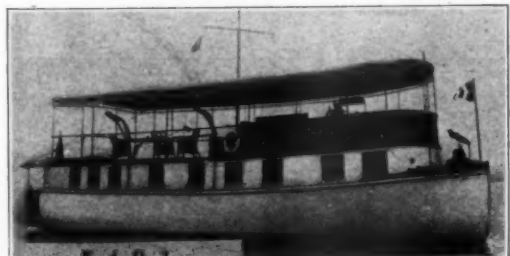
No. 6327—Sale or Charter—98 foot cruising houseboat. Built 1919. Owner's stateroom with adjoining bathroom and lounging room in deck house. Below five staterooms, three bathrooms and dining room. Henry J. Gielow, 52 Broadway, New York City.



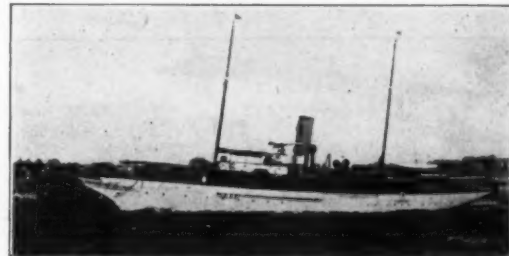
No. 4401—For Sale—137 ft. very attractive twin screw motor yacht. Speed 15 to 16 miles. Built by Lawley. Deck dining room and smoking room. Three double staterooms. Hot water heated. Price attractive. Henry J. Gielow, 52 Broadway, New York City.



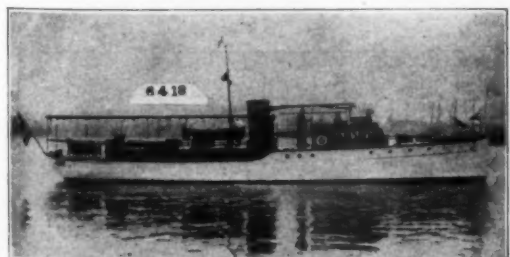
No. 5006—For Sale—Desirable twin screw 110 foot cruising houseboat. Speed 12 miles. Deck, dining room and lounging room. Seven staterooms, three bathrooms. Now in commission. Henry J. Gielow, 52 Broadway, New York City.



No. 5403—For Charter—Desirable 51 foot houseboat. Standard motor. Large deck space. Two double and two single staterooms. Electric lights. Henry J. Gielow, 52 Broadway, New York City.



No. 2138—For Sale—162 foot steel steam yacht. Dining room and music room on deck. Six staterooms, two bathrooms for owner and guests. Overhauled throughout, 1919; also boiler retubed. Henry J. Gielow, 52 Broadway, New York City.



No. 6418—For Sale—72 foot twin screw bridge deck cruiser. Built 1917. Winton motors, 150 H.P. each. Deck dining room. Two double staterooms and bathroom. Electric and hot water heated. Henry J. Gielow, 52 Broadway, New York City.



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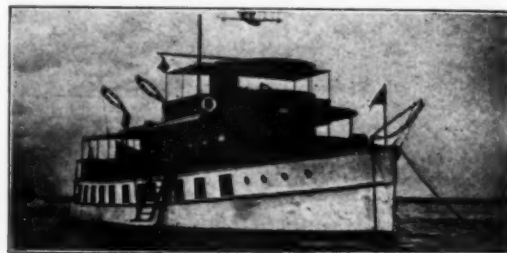
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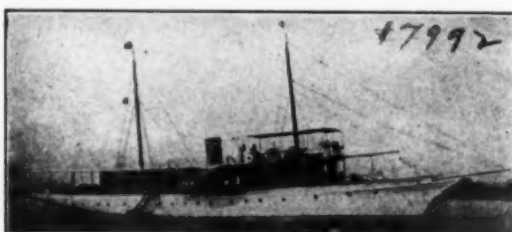
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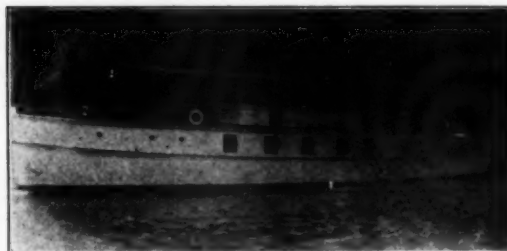
No. 8102—Sale—Charter; most desirable raised deck cruiser available; practically new, 81 ft. x 13 ft. x 5 ft. draft. Speed 15 miles, electric light, hot water, heat and refrigerating plant.



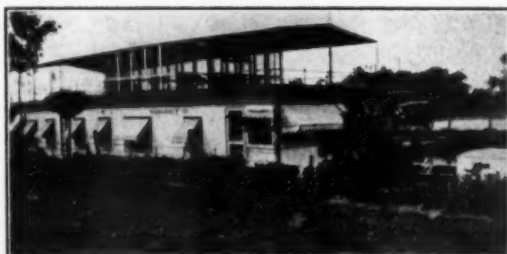
No. 1926—Sale—Charter 98—New houseboat; 6 staterooms, 3 bathrooms, dining saloon, sitting room; electric lighted and hot water heat.



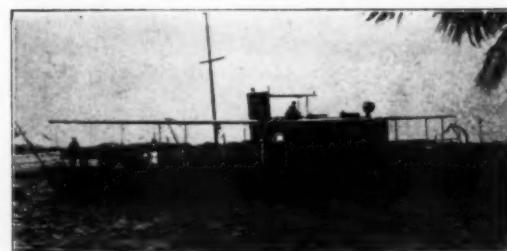
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No. 1927—Sale—Charter—Very desirable; twin screw houseboat; 5 staterooms, 3 bathrooms, dining saloon, lighted by electricity and hot water heat.



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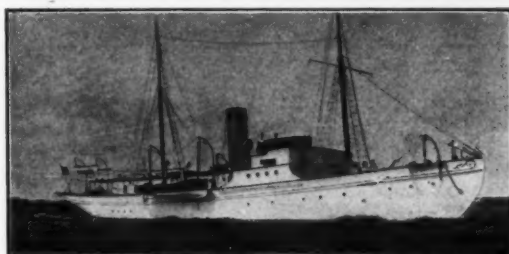
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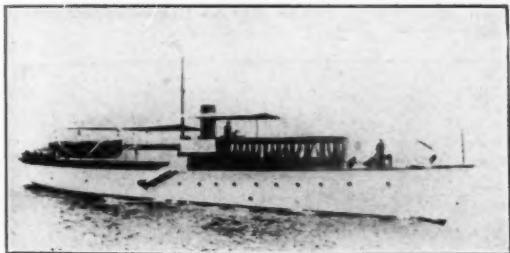
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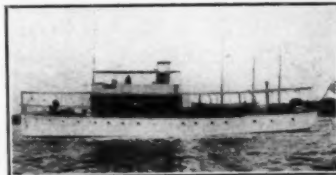
No. 1840—Attractive motor yacht, 107 x 95 x 18.3, best construction, two six cylinder Standards.



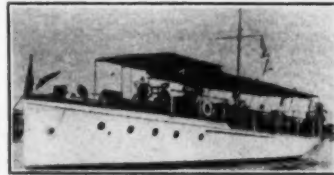
No. 2334—For Sale—New twin screw express cruiser, 85 x 14.3 x 4.3. Two 6 cyl. Sterling engines. Speed 20 miles.



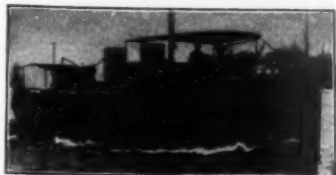
No. 1377—Attractive Twin Screw Cruiser, 70 x 13.6, two Twentieth Century motors, two double staterooms, saloon, etc.



No. 1821—Twin Screw Power Yacht, 90 x 15.4, two six cylinder motors, good accommodation, etc.



No. 1880—Desirable cruiser, 60 x 12, six cylinder motor, speed 12-14 miles. Mahogany pilot house recently added.



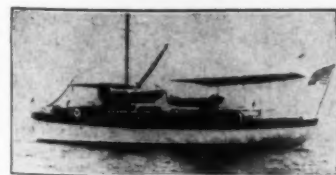
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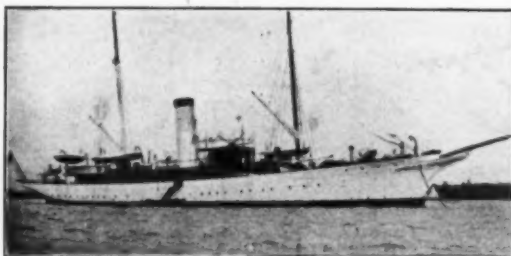
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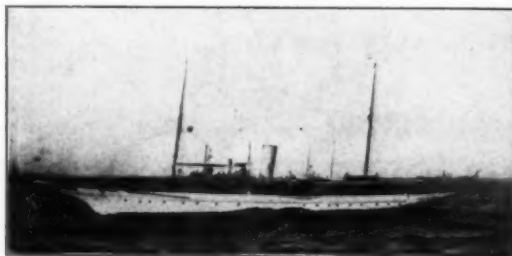
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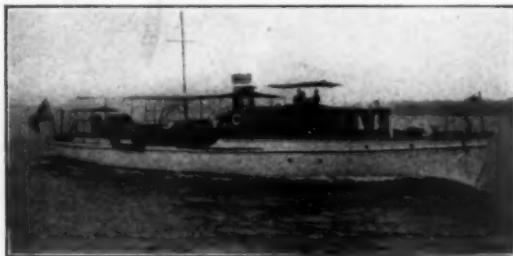
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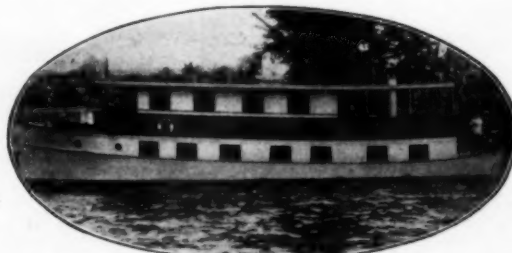
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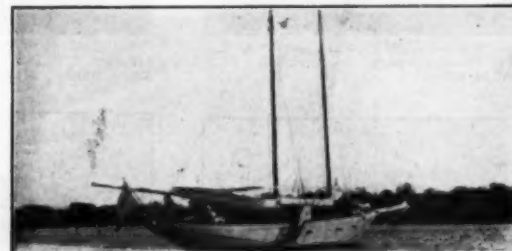
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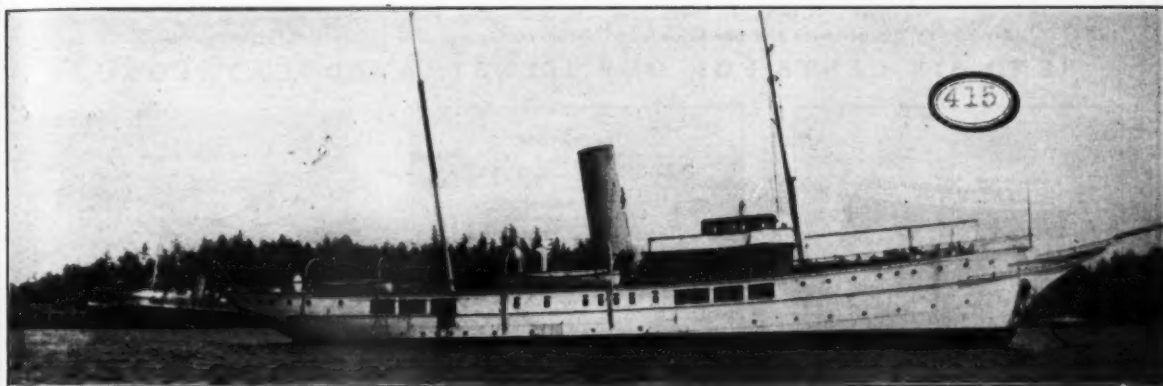
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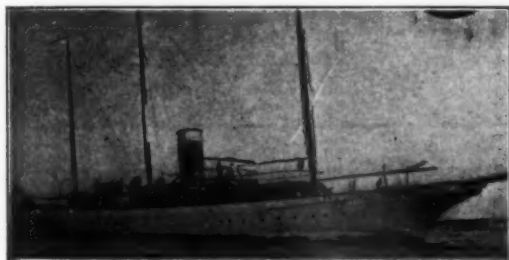
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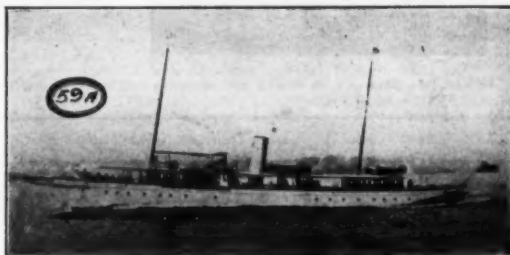
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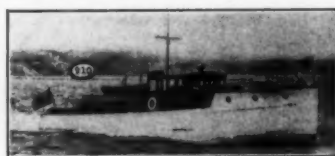
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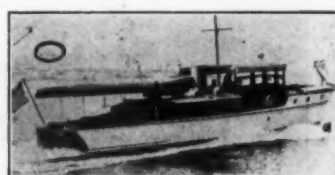
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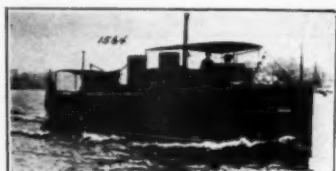
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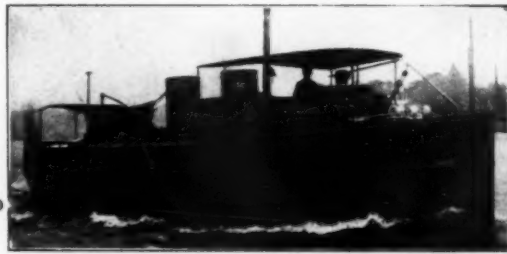
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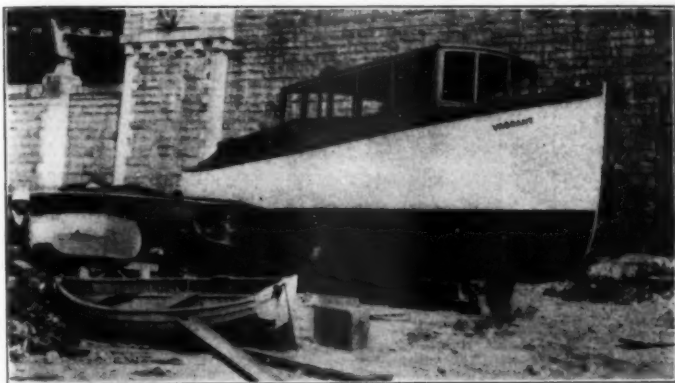
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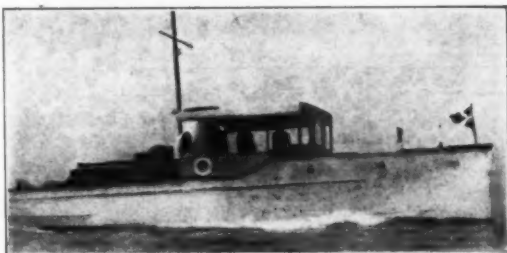
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High grade express cruiser, 40 x 9 x 2 ft. Electric starting and lighting. Large cockpit and Bridge deck, aft cabin mahogany, forward cabin mahogany and white, two toilets; galley entirely refinished throughout. Boat like new. Built 1917. William Schiff, 80 Maiden Lane, N. Y. C.

For Sale—Automatic 75 H.P. 6 cylinder: Standard 65-75 H.P. 4 cylinder; Standard 50-60 H.P. 6 cylinder; Craig 60 H.P. 4 cylinder; Lamb 40 H.P. 4 cylinder, Rockaway 40 H.P. 4 cylinder; Wolverine 32 H.P. 3 cylinder; Craig 25 H.P. 4 cylinder; Lathrop 24 H.P. 2 cylinder 2 cycle; Wolverine 14 H.P. 2 cylinder. Above engines are in good condition and can be seen at Simpson Boat House, 151st Street, North River, New York.

For Sale—1-7-inch Deck Type Carlisle & Finch Are Marine Search Lamp. Brass \$50.00. 1110 14th St. N.W., Washington, D. C., Percy M. Child.

Niagara, 90 horsepower six cylinder, splendid condition, Bosch magneto, Reverse gear, \$800. Ideal for fast cruiser. J. G. Robinson, 39 Associated Service Bldg., Buffalo, N. Y.

Auto Motors Supplies—Buick, Michigan, Stoddard, Dayton, Hupp 32, Cadillac, Overland, E.M.F., Continental and Buda motors. All types \$50 each and up. Bosch Magneto, \$15 each and up. Special High Tension 2 and 4 cylinder magnetos, \$9.50 each. Prest-O-Lite Tanks, \$5.00. Coils, Carburetors, Air Compressors, Generator, Starters, etc. Write for Bargain Bulletin. Second Hand Auto Accessories. Address Motor Sales Dept. B, West End, Pittsburgh, Penna.



For Sale or Charter—Auxiliary sloop "White Cap". One of the best and most complete small single handers afloat. Every convenience for living aboard and comfortable cruising. Perfect condition. Dimensions, 27 x 8 x 3. Built by Geo. Chaison, Swampscott, 1916. Plans were published in the Ideal Cruiser Competition, Motor Boating, April, 1917. One of her cruises from New England to New York in Motor Boating, Jan., 1918. E. W. Kendrick, 427 Dean St., Brooklyn, N. Y.

FOR SALE—1 40 Ft. Raised Cabin Cruiser. Sterling Engine, Speed 9 Miles. \$3,300. Percy M. Child, 1110 14th St. N. W., Washington, D. C.

Twin screw cruiser, 54½ ft. x 14 ft. x 4 ft. Standard motors fully equipped and in good condition. Ready for immediate use. Cruiser designed and built by Whittlesey. Write for particulars. Box 8, c/o MoToR BoatinG.

A WORTH WHILE CRUISER FOR SALE AT A WORTH WHILE PRICE. THE BOAT IS JUST SHORT OF SEVENTY FEET LONG; HAS A DRAFT OF FOUR FEET TWO INCHES, AND IS GOOD FOR FOURTEEN MILES AND PERHAPS TWO MILES BETTER IF YOU PUSH HER. SHE IS HEATED BY STEAM AND HAS A SHOWER BATH; THREE STATE ROOMS; THREE TOILETS; AMPLE CREW'S QUARTERS; A REAL ENGINE ROOM. JUST ABOUT EVERY CONVENIENCE AND FITTING THAT ONE COULD DESIRE. SHE CAN BE SEEN NEAR NEW YORK. GLAD TO TELL YOU MORE ABOUT HER IF YOU ARE INTERESTED, BUT TO SAVE YOUR TIME AND MINE I WILL MENTION THAT HER PRICE IS FOURTEEN THOUSAND DOLLARS. P. O. BOX 214, CARLISLE, PA.

For Sale—Pierce-Budd two-port, three-port two-cylinder two-cycle motor; little used. Atwater-Kent ignition, twelve-fifteen H.P. Price \$125.00. David A. Hollister, Rome, N. Y.

FOR SALE—Small wireless set, receiving and sending outfit, cost \$70.00; will take \$40.00. Percy M. Child, 1110 14th St. N. W., Washington, D. C.

Wanted—1-1½ or 3 Kw. Direct Connected 110-volt Gasoline Electric Light Plant. Must be 4-cycle motor equal to No. 2 Carlisle & Finch Plant. Percy M. Child, 1110-14th St. N.W., Washington, D. C.

Erecting Engineer

A well known manufacturer of high grade marine gasoline engines has opening for a high-class erecting engineer who has had experience and is capable of supervising large installations. Apply by letter stating experience, reference and salary expected. Address

MoToR BoatinG, Box 1

SERVICE MEN

A well known manufacturer of high grade marine gasoline engines has opening for a number of good service men. Apply by letter stating experience, reference and salary expected. Address

MoToR BoatinG, Box 2

THE MOTOR BOATING MARKET PLACE

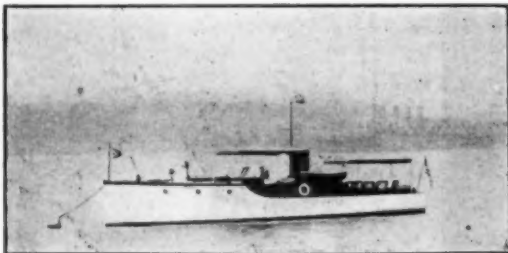
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Opportunities for the Motor Boatman

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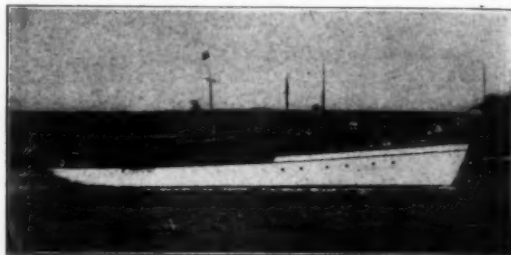


For Sale—Fifty-foot bridge-deck hand V-bottom cruiser with 4 cylinder 4 cycle 40-60 horsepower Buffalo motor. Separate electric light plant; large bathroom with hot and cold running water. Large forward stateroom sleeping four; engine room sleeping two. Interior finish mahogany and white enamel. Boat built in 1918. Used very little, in excellent condition and practically ready to go into commission. Complete equipment including round bottom dinghy. Speed 12 miles per hour. Room 875, Woolworth Bldg., New York City. No dealers.

LET US SELL YOUR BOAT

Somewhere or other there is a buyer for that boat or engine you want to sell. Let MoToR Boating's Market Place find that buyer for you. This Market Place is seen by more possible buyers than any boating market in the world.

See rates above; please send check with order. Advertisements for May issue must reach us by April 15th.



FOR SALE—The steam yacht *Talefa*, designed by Tama, Lemoine, and Crane; built by George Lawley & Son Corporation. Length over all, 101 ft.; beam, 15; draft, 6; gross tonnage, 83; net, 46. Single screw; engine triple expansion, 8¼ x 13 x 21½ x 10½; Horsepower, 325; new 1917 Almy boiler. Fuel capacity anthracite coal, 11 tons. At a speed of 10 knots an hour will run 500 miles on one filling of coal bunkers. Maximum speed of boat 13 knots per hour. Two large master's staterooms with bath; large saloon. Sleeping accommodations for owner and owner's party, 5 or more. Extra transom berths in saloon. Crew quarters, including captain's stateroom (for six), forward. Headroom throughout cabins 6 ft. 6 in. Large dining saloon forward, and galley below. Interior finish white and mahogany. Lighted throughout with electricity, and heated by steam.

After release from service in First Naval District, where her record can be obtained, she was completely overhauled at an expenditure of \$20,000, at George Lawley & Son Corporation, and has not been in commission since the overhauling.

She is completely equipped with new mattresses, blankets, linen, towels, dishes, and new upholstery throughout. After the overhauling she was tested by the Government inspectors and passed. She has entirely new canvas work, three tenders (one motor), and is in the water and can be placed in commission in a short time. Inspectable at George Lawley & Son Corporation, Neponset, Mass. Charter might be considered. Apply for further information and 'builders' plan to A. W. George, 43 Bay State Road, Boston. Asking price \$40,000.



No. 227—**For Sale**—At low price. 30-foot Sea Sled. Built 1916 by Murray & Tregurtha at cost of \$12,000. 2 Van Blerck motors, 150 H.P. each. Speed 35 miles. Little used; fine condition. Apply to John G. Alden, 148 State St., Boston, Mass.

For Sale—2 model D Schebler carburetors; new, never used, 1½ in. size, \$12 each. 2 Bosch high tension magnetos for 3 cylinder engines, one right, other left hand, \$35 each. Write Kipp Weaver, M.D., 4th & Wood Sts., Tarentum, Pa.

For Sale—Ferro 3 cylinder, 25 H.P. 2 cycle marine motor with reverse gear. Ignition, Bosch D. U. magneto. All in first class condition. Price \$100. E. T. Bigelow, 32 Forest St., Medford, Mass.

Everything Electrical for MOTORBOATS, automobiles, tractors, motorcycle. Expert repairing at the lowest possible cost. Why pay exorbitant prices elsewhere. 24 hours service. Bosch magnetos, \$15.00 up; generator-starters, \$20.00 up; coils \$2.00 up; New Bosch, Eisemann, Splitdorf, Berling magnetos, 30% off list price. Motorboat repair shops special price. Onody Auto Electric Works, 334-336-338 Oak Street, Buffalo, N. Y.

For Sale—One Roberts model P four cylinder engine, used very little, rated 35 to 40 H.P. Equipped with Kingston carburetors, Bosch high tension magneto, Paragon reverse gear, dual ignition, self-starter and generator and storage battery. Price, for quick sale, \$550.00 f.o.b. Alton Bay, New Hampshire. Address John H. Bickford, 6 Beacon Street, Boston, Mass.

For Sale—Sterling 1919 Model FS 6-cylinder 145 H.P. aluminum base, full equipment, extra distributor, ignition system. Used about 20 hours. Motor better than new. Operated by former Sterling Service mechanic. Owner changing for more powerful and lighter engine. \$2,100.00 cash. Arthur J. Utz, 236 Main St., Buffalo, N. Y.



No. 477—**For Sale**—High grade Lawley motor boat, 50 x 10 x 3.75 ft. Well suited as family boat for day sailing and short cruises. Able and comfortable. Bridge deck, roomy cabin, toilet room and galley. Large cockpit aft. Crew's quarters, including toilet, forward. 40 h.p., 4-cyl. heavy duty Sterling engine. Speed 12 m. Electric lights. Has had very light usage and best of care. Apply John G. Alden, 148 State Street, Boston.

FOR SALE: 20 horse power heavy duty Globe marine engine complete. With 30 inch propeller. All crated, ready for export shipment. \$450. In first class condition. c/o G. R. Meyers, 2650 Marion Avenue, Bronx, N. Y.

Solid Cork Life Preservers from U. S. Navy. Solid Cork Life Jackets, \$1.00 each. Solid Cork Children Life Preservers, 60c each. B. J. Green, 40 Rickards St., Brooklyn, N. Y.

One cyl. two cycle
2 H.P. Bridgeport\$35.
3 H.P. Thrall 35.
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3 H.P. Truscott 40.
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Four cycle engines
2 H.P. One cyl. Dunn and propeller 40.
5 H.P. One cyl. Imperial. 135.
12 H.P. Three cyl. Dunn. 95.

Also large line of auto engines, tractor and stationary engines. Supplies of every nature at very low prices. We take engines in trade and

12 H.P. Three cyl. Doman175.
15 H.P. Two cyl. Campbell 5½ x 6¾, gear, wheel295.
18 H.P. Buffalo 4 cyl. gear and propeller395.

Two cyl. two cycle
8 H.P. Ferro\$95
10 H.P. Roberts105.
12 H.P. Gray130.
15 H.P. Detroit 95.
15 H.P. Knox, gear, and wheel195.
18 H.P. Vim 5 x 5110.
15 H.P. Page & Busch.

man 3 cyl. 3¼ x 4 95.
18 H.P. 3 cyl. Fairbanks-Morse 4½ x 4½175.
30 H.P. 4 cyl. Termaat-Monahan 5 x 5245.
30 H.P. 4 cyl. Fairbanks-Morse 4½ x 4½265.

Standard type four cyl. four cycle engines intended for tractor work and fine for marine use.

One 5 x 7 Automatic\$350.
One 6 x 6 Model 385.
One 6 x 7 Doman new... 675.
7¼ x 9 Minneapolis1350.

buy them. What have you? Badger Motor Company, Milwaukee, Wis.

"N'EVERYTHIN" FOR SALE

Champion runabout Great Lakes and Miami. Hacker built—200 H.P.—Launched last August. Communicate E. H. Ballard, Drawer 896, Miami, Florida.

For Sale—Boat cheap, 63 ft. long, 4 ft. draft, 1½ ft. beam, 60 H.P. engine in good shape. North Star Boat Line, Ortonville, Minnesota.

USED MATTHEWS ELECTRIC LIGHTING PLANTS. Automatic Marine and Land types—one and two kilowatts—32 volt—attractive prices—Widger & Miller Co., Matthews Dealers, 141 Milk St., Boston, Mass.

For Sale—12 H.P. Sterling engine, 2 cyl. 4 cycle complete, with mechanical oiler, reverse gear, carburetor, magneto, elevated rear starter, 3 blade bronze propeller and shafting. This engine has not been run over six months since installed, now using larger engine. First check for \$250.00 takes it. Also 4 H.P. Ferrow, \$35.00. Walter H. Maynard, Rockwood, Maine.

4 cylinder 4 cycle Craig engine, 6 inch bore 7 inch stroke, complete with reverse gear carburetor, etc., no shafting or propeller. Engine set like new but apparently in good order and fit for many years service. Will consider an offer. Luders Marine Construction Co., Stamford, Conn.

THE MOTOR BOATING MARKET PLACE

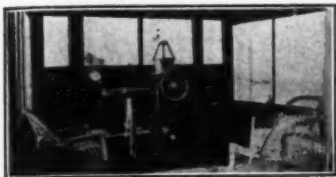
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Opportunities for the Motor Boatman

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FOR SALE—Motor yacht "Tramp." 56 feet over all, 11 foot beam and 3 foot draft. Designed and built by George Lawley Corporation.

A large aft stateroom finished entirely in mahogany and teakwood, newly upholstered and carpeted, contains a three-quarter bed, two transom berths, toilet and clothes closets.

Forward stateroom finished in Butternut, natural finish, two berths and toilet. Large galley width of boat, containing a three burner, alcohol, Seabury stove. Ice box holds 250 pounds of ice. Large, well lighted and ventilated engine room containing two transom berths. Steel bulkhead dividing engine room from aft cabin. One man control; all controls and starter brought to bridge. Deck space unusually large. Bridge deck 11 by 12 feet; aft deck 10 feet. Two new tenders, one motor.

Engine—Sterling, new 1919, heavy duty, 45-85 H.P. Speed guaranteed 11 miles per hour. Gasoline capacity two 100-gallon copper tanks. Furnishings of boat such as blankets, etc., never been used. Boat not in naval service. Asking price for sale \$10,000.

For further details and inspection—A. W. George, 43 Bay State Road, Boston, Mass.



For Sale—38-ft. Speedway launch, 6-ft. beam, 135 H.P. Sterling engine with self starter. Speed 24 miles. All in good condition, engine overhauled. Can be seen at THE ELCO WORKS, Bayonne, N. J.

For Sale—almost new 160 H.P. 6 cylinder 4 cycle marine motor 5½ in. x 7 in complete with electric starter, etc. A bargain for quick sale. Box W, c/o MoToR BoatingG.

Our floor space of about 18,000 square feet allows us to nicely display over two hundred (200) slightly used and rebuilt machines. If you are in the market for a rebuilt engine, we have some particular type that is exactly suitable for that very type of boat you have. Let us know the exact dimensions and type of your boat and we will be pleased to give you the benefit of our experience in selecting a power plant that is correct. BRUNS KIMBALL & CO., 153-159 West 15th Street, New York City.

For Sale—Because I have purchased larger boat I now offer 40 ft. raised-deck cruiser complete in every detail and convenience, double stateroom and saloon, sleeps 4 to 6 in owner's party. Correspondence solicited but to save time note that price is \$4,000; cannot be duplicated for double. Address, Castle, Lincoln Bldg., Philadelphia.

For Sale—Raised deck cruiser 46 by 11 by 3½. Engine, 45 h.p. Sterling. First class condition; never out of owner's hands. Launched 1915. Price \$6,000. J. H. Egan, 236 S. 9th Street, Philadelphia, Pa.

Bargain—7 in. searchlight, 1200 c.p., Carlisle & Finch, type M make, new used less than a week, complete generator, rheostat, etc. First \$125.00 takes light outfit. John G. Matt, Box 615, McCall, Idaho.

Wanted to buy cabin cruiser about 33 feet long, not over 3 years old, full headroom preferred. Price and particulars to P. O. Box 103, Norfolk, Va.

For Sale—28 ft. motor boat, 10 H.P., 2 cycle, 2 cylinder Lathrop engine. Seaworthy, excellent condition. Price \$500.00. Box 172, Vineyard Haven, Conn.

Trimount
Whistle Blower Outfits
Blower runs by friction contact with engine fly-wheel. Whistle of brass, nickel-plated.
Made in 3 sizes.

TRIMOUNT ROTARY POWER CO.
20 Heath Street
(Factory: 292 Whiting Ave., East Dedham, Mass.)

Trimount
Rotary Hand Bligs
Pumps
All bronze composition. Suction lift 6 to 20 feet. A lifelong convenience.
Made in 3 sizes.

Boston, Mass.



For Sale—Comfortable cruiser suited for open water sailing, nearly new, small auxiliary sail plan, ten horse engine, paragon reverse gears, copper tank, Curtiss toilet, anchor and chain, full headroom, accommodates two to four people, stored at Portland, Conn. Price \$650. Further particulars address A. T. MARSHALL, 53 Oakland Terrace, Hartford, Conn.

For Sale—1-9 in. Carlisle & Finch pilot house control arc searchlight. Solid brass. Price, \$125.00. Percy M. Child, 1110-14th St. N.W., Washington, D. C.

First class mechanic and reconstructor of gasoline motors, A-1 in every respect. Would like to accept responsible position on or about June 1st. Thoroughly acquainted with electric installations and the repair of any part, mechanical or electrical. At present employed as maintenance engineer, having charge of local ferry, dry dock and machine shop. Familiar with office work and able to carry correspondence in English and Spanish. Address: J. W. W., Box 1271, San Juan, P. R.

Use "SNAPPER" ENGINES for your small boat. They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

CANADIANS, Second-hand engine bargains. Send for list.

GUARANTEE MOTOR COMPANY
73 Bay Street, North Hamilton, Ont., Canada



For Sale—Motor boat "MARY." Size 34 x 9½ x 3. 18-20 Standard engine. Speed 9½ miles. Sleeps four. Good heavy sea boat. Equipment complete. Can be seen at Reids Boat Yard, Winthrop, Mass.

For Sale—3 cylinder, 2 cycle, 5½ in. bore, 5½ in. stroke, Barber Bros. gasoline engine, complete with shaft, 20 in. reversible propeller, in first class condition. Manufacturer's rating 36 H.P., 1,000 R.P.M. For further information write Box 24, c/o MoToR BoatingG.

For Sale—12 ft. yacht dinghy, mahogany trimmed, canvas cover. N-617 Mutual Life Bldg., Buffalo, N. Y.

Young man (26) has six years naval experience as deckhand and acting boatswain seeks position with privately owned traveling yacht. Box 5, care of MoToR BoatingG.

Companion wanted to live afloat; one who will share the expense of building a substantial motor boat, and make it our home year in and out, north in summer, south in winter, sharing the expenses together of our living, which will be small for two men, with fish, oysters, and other sea food for the taking and if desirable, take out fishing parties to pick up extra money; only those in later life should reply; be frank, state what you could do. Salt Marsh, Box 18, c/o MoToR BoatingG.

Wanted—12 ft. round bottom boat, also 18 to 20 ft. motor boat both to be used on davits. Donald B. Upham, 260 West 76th St., N. Y. C.



All Sizes Rebuilt

marine engines from one to 300 H.P. 4 cylinder 4 cycle Globe 10x14" 50" 3 blade propeller. \$3,000.00 a pair 11x13 Graig's \$4,000.00, 37 H.P. Standard 4 cylinder \$1,800.00, 4 cylinder 6x8 Speedway \$200.00, 100 H.P. Graig \$1,500.00. Automatic, Buffalo, Lathrop, Starling, Mianus, Palmers and others.

Send for complete list
HAMILTON MARINE ENGINE EXCHANGE
440-444 Fifty-second Street
Brooklyn, N. Y.

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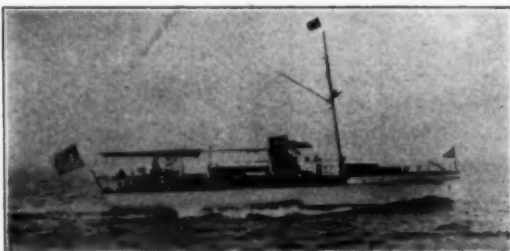
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For Sale—"Caliph"—60 ft. O. A. x 12 ft. beam, 3¼ ft. draft. 4 cycle 4 cyl. 6 in. x 8 in. Kent engine. 40 H.P. Complete electric equipment. Generator—Edison storage battery, etc. A thoroughly safe seagoing cruiser and a boat with a reputation. Address—M. E. Brigham, 29 Washington Ave., Philadelphia, Pa.

For Sale—Auxiliary sloop, 48 ft. x 14 ft. 9 in. x 3 ft. 9 in., almost new, 4 cycle 30 H.P. heavy duty Standard motor. Complete equipment, sleeping accommodations, toilet, running water, electric lights, good sail and rigging, ideal party and fishing boat seen at Lawrence Beach, L. I. Price reasonable—owner at Nassau Hotel, room 207, New York City.

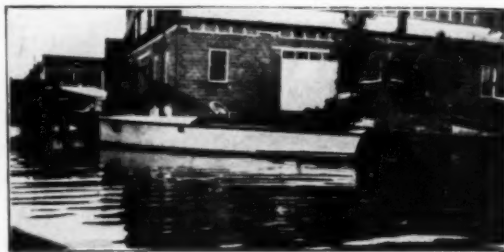
Motor Boat Wanted—I have 20 acres of land in Florida. I do not need it all and will exchange half of it for a good motor boat. Cabin cruiser preferred. C. B. Hacking, Phm. B—, Listowel, Canada.

FOR SALE—One 62 Ft. Motor Yacht. Standard Motor. Speed 10 Miles. \$7,000.00. Percy M. Child, 1110 14th St. N. W., Washington, D. C.

Wanted—Position as captain-manager of a 65 to 85 foot cruising power yacht which owner only uses for limited period each year. Desire business arrangement with owner enabling me to operate and manage yacht during balance of year for our mutual profit. Have had good fresh and salt water experience on Atlantic and Pacific coasts. Capable as captain, navigator and engineer. College graduate with technical training, engineering and executive experience. Write to H. R. Ward, 29 West 47th St., New York City.

Wanted—Fast runabout. Boat must not be over 25 ft. and must make about 30 m.p.h. Answer if you have a bargain for cash. E. M. Whaley, 1430 Blanding St., Columbia, N. C.

Extra heavy copper stills especially adapted to distilling water for automobile batteries. One gallon capacity. Shipped C. O. D. \$22.50. STANLEY PHARMACAL CO., Dept. A 14, 105 W. Monroe St., Chicago, Ill.



For Sale—21 ft. V bottom runabout, 25 H.P. Sterling Engine, North East starting and lighting system, full automobile control, white finish with solid mahogany trim; full nickel brass equipment; autotop and side curtains. Speed about 20 miles. Used less than one season. Have larger boat reason for selling. Could not be duplicated for less than \$3,000. today. Price, \$1,600. Can be put in commission in few days. Built by Great Lakes Boat Building Corp., Milwaukee, Wis. Write or wire there.

BARGAINS

BARGAINS

EAGLE TWO CYCLE ENGINES

We purpose to close out at greatly reduced prices our entire stock of "Eagle" two cycle engines, as we intend to discontinue the manufacture of this type of engine in the future. Write at once for information to the

TORRINGTON COMPANY
STANDARD PLANT
Torrington, Conn.

30 ft. cruiser—raised deck. Well equipped—Galley and toilet. Price \$600. Wilbert's Marine Railway, Forked River, New Jersey.

Wanted: Captain for a two man Gasoline Yacht.

Man desired who is familiar both with northern and Florida waters. Must be sober and willing to work when necessary. No grouch need apply. A desirable job for all the year round, with congenial owner and pleasant surroundings and fair salary. A married man with a wife willing and able to cook will be considered. Give age and experience with references. Address Box 9, care of MoToR BoatingG.



Patented Jan. 30,
1917
Approved by the
Underwriters

Automatic Extension Reel FOR ELECTRIC LAMPS

This fixture enables you to inspect your boat or engine at any distance from the reel. With this outfit installed in your boathouse or machine shop you can take your lamp with you to any part of the building—an automatic lock holds the lamp at any desired distance. The mechanism automatically rewinds the cord when you are through with the light. It is equipped with 25 ft. of reinforced cord, handle, socket and lamp guard. Write today for prices.

The Cincinnati Specialty Mfg. Co., Inc., 1920 Powers St. Cincinnati, Ohio

Second Hand and Re-Built Motors

Net

J-6	6x6 125-160 H.P. @ 1000-1500 R.P.M.—Rebuilt Monroe	\$1650.00
J-8	6x6 163-215 H.P. @ 1000-1500 R.P.M.—Rebuilt Monroe	2000.00
4-cyl. "E"	3¼x5½ 17-25 H.P. @ 600-1000 R.P.M.—Used—Sterling Bradentown, Fla.	350.00
4-cyl. "B"	Tractor 5¼x7 31-95½ H.P. @ 400-1300 R.P.M.—New—Monroe	800.00
M-4	5¼x6 75-100 H.P. @ 1000-1500 R.P.M.—Used—New York	1200.00
EE-4	5½x6 40-55 H.P. @ 650-1000 R.P.M.—Rebuilt—Toronto	1600.00
E-6 RH	5½x6 100-135 H.P. @ 1000-1500 R.P.M.—Used—New York	1000.00
E-6 LH	5½x6 100-135 H.P. 1000-1500 R.P.M.—Used—New York	1000.00
J-8 RH	6x6 163-215 H.P. 1000-1500 R.P.M.—Used—New York	1000.00
J-8 LH	6x6 163-215 H.P. 1000-1500 R.P.M.—Used—New York	1000.00

All prices net f.o.b. shipping point, and motors are subject to prior sale.

Van Blerck Motor Company
MONROE, MICHIGAN

BRUNS KIMBALL & CO Inc



REBUILT MARINE MOTORS

All sizes and types. Many with self starters.

Engines for both pleasure and commercial boats.

Rebuilt by our marine motor experts, with old faults corrected, worn parts replaced.

Dependable engines in really serviceable condition, at prices that will interest you.

To mechanics and others who can do their own overhauling we sell many engines just as they reach us, at greatly reduced prices.

If you are in the market for a new or rebuilt engine, we have right in stock an engine exactly suited to your needs. Tell us the dimensions and type of your boat and we shall be pleased to give you the benefit of our experience in selecting the correct power plant.

Our floor space of about 18,000 square feet allows us to display about two hundred slightly used and rebuilt marine engines, together with our regular lines of new engines. Come in and inspect this stock—it is a perpetual marine motor exhibition well worth seeing.

Write today for printed list of rebuilt engines

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153-155-157-159 West Fifteenth Street, New York City

Branch Show Room

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Write for 48-page illustrated catalog
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120 BROADWAY NEW YORK

CHARLES D. MOWER

Designer of

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Twenty-five years' practical experience

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Marine Railways, Storage, Repairs
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YACHT BROKER

501 FIFTH AVE., at 42nd St., N. Y.

Desirable yachts of all types for sale and charter
Telephone 968 Vanderbilt

Electricity Applied to Small Boat Propulsion

(Continued from page 25)

and motor are definitely known, the current supplied can be accurately measured and the efficiency of propeller readily determined.

An unusually complete set of instruments is carried on Dawn, as she has been used extensively for scientific research in ship propulsion experiments. The board carries thirteen different instruments, these are a separate ammeter and voltmeter for the generator, the exciter and the motor, a clock, an electric tachometer for motor revolutions, another for generator revolutions, and still another calibrated to read the speed of boat. A meter to measure fuel consumption between main and feed tanks, and pressure gauges registering oil pressure on thrust bearing ahead and astern.

When tests are under way, a camera is so mounted as to photograph the board at intervals as determined by the clock. Permanent, accurate records are thus obtained when operating under test conditions.

The entire control of the boat is centered in a switchboard in the pilot house just forward of the steering wheel. A tremendous overload capacity is present in the electric equipment and a very positive control of the boat is possible at all times.

A further innovation is the introduction of Balsa wood in all spaces below the floor lines. The boats are unsinkable by reason of the great buoyancy imparted by this marvelously light wood. Should the boats suffer accident and leak, the water will flow in until the displacement is taken up by the buoyant effect of the Balsa which fills all available space.

Since the floor has been so placed as to remain well above the waterline, persons aboard would hardly be inconvenienced.

The surface of possibilities for this system has only been scratched thus far. Consider a string of barges coming down through a crooked river all electrically driven by power generated on board the towboat which is the last one in the line. When it is necessary to drop a barge here or there, it is maneuvered to the wharf under its own motor and made fast. The connecting plug is pulled out, the cable rolled up and the rest of the tow proceeds. Picking up a barge further along is as simple. The electric cable is passed aboard, plugged in, and immediately the barge can proceed with power furnished from the towboat.

Consider again the inefficiency of the traffic on the Hudson River for example. The night boat travels up the river and lays over all day in idleness. The day boat reverses the process. What could be simpler than for a Diesel-engine power boat to supply power to the day boat by day and to the night boat by night. There is no limit to the power which can be generated or transmitted and it is apparent that there are unlimited possibilities in this direction.

Galvanized Steel Buoy

(Continued from page 33)

A through bolt is fitted before welding. This should be threaded into a plate and soldered to obtain perfect water-tightness.

A buoy of this type will carry considerable more due to it being an air-tight tank, but as it is desirable to have the buoy showing considerable above water, this item is not figured as for all practical purposes the foregoing rule will prove satisfactory and you will find it afloat.

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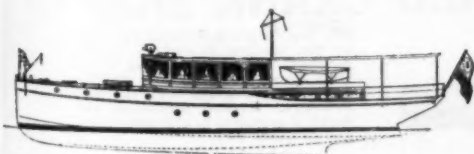
galley, a contented crew, a wide range of speed, and the safety developed through Albany construction.

That this cruise was made without engine trouble is additional proof of the efficiency of Albany workmanship.

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- Glass Enclosed Bridge Deck and Dining Saloon.
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- Awning protected aft deck.
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WM. P. YOUNGS & BROS.

35th Street and East River, New York City

Complete Instructions for Building a Half Model

(Continued from page 30)

paper is good for the last rub, which
should leave no scratches but finish an
absolute smooth surface. In building to
the layer method shave off corners of
"steps" and use templates as explained
above.

In auxiliaries or sail boats where there
is a reverse turn to the garboard the keel
should be integral with the bottom strake.
In runabouts or boats with flat keels the
rabbet is practically the keel line and the
work must be governed accordingly. The
vertical keel in cruisers offers an awk-
ward obstruction in fairing the under-
body of the hull and for this reason it
should be made separately. To make a
neat joint it is advisable to cut a rabbet
at the rabbet proper to allow keel to ex-
tend under hull. See Figure 4.

The crown of deck may now be made
and such deck erections, skylight, hatches,
etc., as are desired. Do not attempt de-
tail work for these parts as simplicity is
expected in a relief model.

Backboard may be any kind of wood
that fancy dictates. It should be from
6 to 10 inches longer than the model and
3 to 6 inches wider. The face edge may
be cut to an "O G" curve or some simi-
lar finish, and probably the easiest is
also the most effective.

Leave one-third the thickness of the
board stand vertical or at right angle to
the surface and chamfer the balance of
the edge of a 45 degree angle. Plane and
sandpaper the board smooth, especially
the part that the model will not cover.

A better finish can be given the parts
before they are assembled. If deck ere-
ctions are dispensed with, there are but
three parts to consider: the keel, hull and
backboard. The backboard is best to
finish first as it cannot be damaged ap-
preciably if the varnish proves to be of
inferior grade. If desired, the three
parts may be finished in unison. Use
shellac to fill the pores of the wood ap-
plied in thin coats with a brush. After
thoroughly dry, cut down or rub with
fine sandpaper and apply another coat.
Repeat and the third coat should be
rubbed with pumice and rotten stone
powder applied with cheesecloth, dipped
in linseed or crude oil. Rub in the direc-
tion of the grain in long even strokes.
Each succeeding coat of shellac will take
more time for drying. Allow twenty-
four hours for the first coat and two to
three days for the following coats. Do
not rub until shellac is bone dry.

Install the keel in its rabbet fastening
with small headless brads driving upward
into model. Set model in position on
backboard and fastened with four or five
screws, staggered and driven through
back of board. Turn two screw eyes in
top edge of board, splice the required
length of wire—and look for a place to
hang the finished model.

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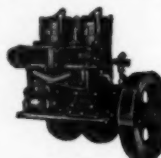
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B. F. STURTEVANT COMPANY
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Surf Landing Simplified

(Continued from page 15)

stand. When a boat is running in through a surf she is proceeding in the same direction as the sea and offers but little resistance to it. If she is making her way in bow first, her stern is elevated as the breaker reaches it, and the tendency is to carry her on before it in this position.

However, if the surf is a heavy one and the boat does not have resistance enough to allow the wave to pass, she will be carried along before it with her stern in the air and her bow half submerged at the base of the breaker. The danger of this position lies in the fact that the water in which her bow rests is comparatively stationary, whereas the breaker itself is moving at a rapid rate. The bow, meeting this resistance, tends to submerge itself, and the pressure of a heavy sea upon the boat's stern hurls her end over end or else brings her around broadside to the surf and capsizes her. It is in this way that nearly all accidents to boats in a surf occur.

The chief concern, therefore, in attempting to make a landing should be to increase the resistance of the boat at the moment it is overtaken by a heavy sea, and thereby allowing it to pass her. There are several ways by which this can be accomplished.

The best and surest means is by the use of a drogue or drag, a canvas bag especially made for this purpose. The drogue used in the Coast Guard for their surf boats is made of No. 6 cotton canvas; it is cone shaped, 15 inches in diameter at the mouth and 30 inches long. The drogue is fitted with a holding line 10 fathoms long, and a tripping line, somewhat longer. When the boat enters the surf the drogue is thrown over the stern, both lines being made fast near the sternpost. To check the headway of the boat the tripping line, attached to the apex of the conical drogue, is slackened so that the drogue is towed mouth forward by the holding line. If more headway is desired, the holding line is in turn slackened, again bringing the small end of the drogue forward. The drogue serves the double purpose of providing the necessary resistance to the water and of keeping the boat stern on to the sea. If caught in a gale in an open boat it can be used also as a sea anchor to keep the craft head on to the sea. In a surf, a piece of iron or other weight will serve the purpose of a drogue in an emergency, and can be cast off after the more dangerous outer breakers have been passed.

When no drogue is used, a common method of landing is to turn the boat's head to the sea and back in. The advantage of this is that the oarsmen by pulling several vigorous strokes just before each wave strikes, can gain sufficient headway to carry the boat over it. As soon as the wave has passed, backing is again resumed until the approach of the next. This is a slow but relatively safe means.

A quicker method, which should be used only when the surf is moderate, is to go in with the stern to seaward, depending upon backpaddling with all oars to carry the boat over the heavier waves. Occasionally it is practicable to seat the after oarsmen with their faces forward, they alone rowing as each sea approaches.

The trim of the boat is important. Heavy weights should by all means be kept out of the bow, particularly if the boat is going in with her stern to sea. The best trim is with the weight out of the extreme ends, but deepest at the end which is to seaward. This gives the boat more stability and makes her easier to steer. Steering should be done by an oar over the stern, or on one quarter.



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How Is Your Com- pression?

(Continued from page 19)

of contact with the cylinder wall should be discarded. Replace these with new rings. The ordinary rings as supplied by the motor builders will do, but while the engine is down it is advisable to replace worn rings to the extent of one or two per piston, with one or another of the numerous patented leak-proof type of rings. Many excellent rings are now being made which are guaranteed to be gas-tight. At the present prices of gasoline and the pleasant prospect of still higher prices to come, when the season begins in earnest, it behooves every man to look well to his compression. There is probably no single detail of a motor which can cause such a loss in fuel efficiency as poor compression. Adopting some of these rings will remedy this condition and they will soon pay for themselves in fuel efficiency.

Freedom enough to allow them to expand properly must be provided. These remarks thus far apply equally well to either two-cycle or four-cycle motors with the possible exception of the main bearings. For these in the case of the two-cycle machine it is necessary to see that they are not only tight but also that they are gas-tight in order to reduce crankcase compression losses.

Four-cycle motors are susceptible to further losses of gas efficiency at the valves. These should be ground, first with coarse and finally finished with fine grinding compound. Valve tappets should be adjusted
(Continued on page 64)

Shadow V
Express
cruiser
Champion
of U. S.

WASSON

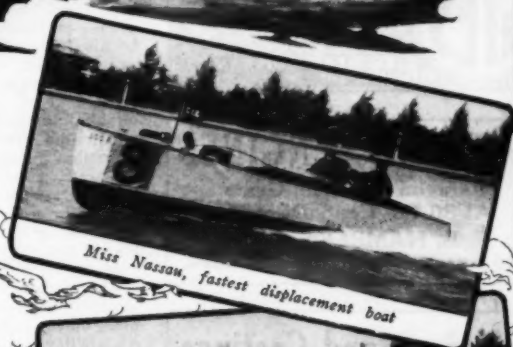
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Miss Nassau, fastest displacement boat



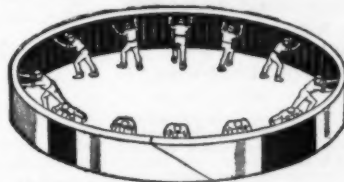
Gar Jr., fastest express cruiser

WASSON—the Unanimous Choice

To break these records every ounce of power developed by the roaring motors had to be translated into propeller revolutions. There could be no loss of compression due to leaky piston rings.

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Agents for Pay & Bowen, Clay heavy duty,
Fulton EnginesJoe's Reverse Gears, Wizard Magnetos,
E. W. Coils

How Is Your Compression?

(Continued from page 62)

also, to insure proper closing of the valves after they become heated to expand. Clearance sufficient for this must be allowed.

Such things as oil lines, oilers, and ducts should be thoroughly cleaned and sight-feed drop cleared of all gummed oil.

Suffing box glands on pumps should be examined and all old packing taken out and replaced with new material. Grease cups should be cleaned and filled with new grease and passages for the grease should be also cleaned to make certain that they are not obstructed. These grease ducts can most readily be cleaned by taking a twist drill of the proper size and drilling out the old grease.

All nuts and bolts should be properly tightened, replacing all broken lock-washers and using none but new split pins. The cost of these is so trivial that it is not worth the time involved to straighten the old ones or to run the risk of a piece of an old pin getting into the bearings in the case of one breaking.

The carburetor is not likely to require anything outside of a cleaning. The cork float may possibly be improved by a coat of shellac. Otherwise the adjustments should be left as they are.

Wiring and electrical details should be carefully gone over, chafed or injured wires should be replaced. The circuit breaker gap should be adjusted to the 1/64th-inch recommended by the magneto manufacturers. Likewise the spark plugs should be examined and cleaned and their gap adjusted to the gauge of a worn dime.

If dry batteries are used as source of current for ignition service the connections should be overhauled and a new set provided. When purchased in lots of a dozen the price is slightly more favorable and they should be connected up in series multiple as explained a few months ago. In this way the longest life and greatest service from the dry cells can be secured. A point to remember when installing dry batteries is that water or dampness is injurious to them. They should be protected by a container of some sort or otherwise covered with paraffine or storage battery compound.

The points mentioned are the principal items to be investigated. Specific instructions covering each detailed operation are of course impractical. Cleanliness and orderliness are the prime requisites for any overhauling and care in reassembling is essential. If things don't go just right, do not lose your patience, but stop for a minute and think out the cause. Minutes spent this way have been known to save hours later.

Yard and Shop

(Continued from page 44)

Mullins Boats

Another order for twenty-five Mullins non-sinkable steel rowboats has been placed by the New York Zoological Park. The first lot of twenty-five were installed some twelve years ago and are still in service. Over 200 of these boats are now in use on the park lakes and they are preferred on account of their light weight and freedom from leaks.

In addition to the rowboats the Mullins Company manufacture a complete line of steel motor boats and many of these have been shipped abroad, and once conditions in the world return to normal they expect that they will have difficulty in supplying the demand for their boats. Agencies are being established in many parts of the world.

Advertising Index will be found on page 148

Andrade Tell-Tale Compass

An efficiency device of considerable merit is the Tell-Tale Compass as devised by Captain R. Andrade. This is intended for use on larger vessels and operates so that the captain or commanding officer may be apprised of any considerable deflection from the set course. Variations due to careless steering are announced to the captain by bells, and a saving in fuel and time result owing to the improved course.

Baltimore Plant Sold

Black and Decker have recently sold their Baltimore plant to a group of former employees and its new name is now the Dieffenbach-Westendorf Mfg. Company. Its entire energies will be devoted to supply the demand for portable electric tools.

Frisbies in Canada

Percy Semmelhaack, of 333 St. James St., Montreal, will represent Frisbie, valve-in-head motors, in the Province of Quebec. A full stock of the various sizes of Frisbie motors will be carried. Frisbie service will be available to all users.

Standardization in Japan

An order for one dozen of the new J.V.B. motors has just been received from the Motor Boat Company, of Tokyo, Japan. These will be installed in twelve stock boats which the company is building and details of which will be published later.

Standardization of both motors and hulls is popular throughout the world even in far off Japan.

E. J. Willis Company En- larging Quarters

Additional showroom and stock space is being provided by the E. J. Willis Company in order to take care of their increasing volume of marine business and to provide ample space for the business ahead for 1920.

Sootless Spark Plug

In an advertisement on page 79 of the March issue Sootless spark plugs were referred to as Sectlless sparks. This very apparent typographical error is regretted, but one of the variety which can be traced back to the printer's devil.

These spark plugs are made with heavy brass jackets and mica insulation by the Oakes & Dow Co., of Boston, Mass. These spark plugs are dependable under all conditions and are guaranteed to be sootless.

They are made in all sizes to fit all makes of marine engines by one of the oldest and best known plug makers in the country. Because of their all brass housing these plugs are ideal for marine engine service as they are not affected by salt water.

A New A. P. B. A. Section

Jamaica Bay has lately taken a very live interest in motor boat racing. A natural result of this action was the formation of a new local section of the American Power-Boat Association which is to be known as the Jamaica Bay section.

The activity in that vicinity is a good sign and promises well for the coming season. At the present time there are enrolled in this section the following prominent clubs:

Bergen Beach Yacht Club, Broad Channel Yacht Club, Canarsie Yacht Club, Diamond Point Yacht Club, Motor Boat Club of Jamaica Bay, Old Mill Yacht Club, Rockaway Park Yacht Club.

(Continued on page 68)

ANNOUNCEMENT

of

Price Advance

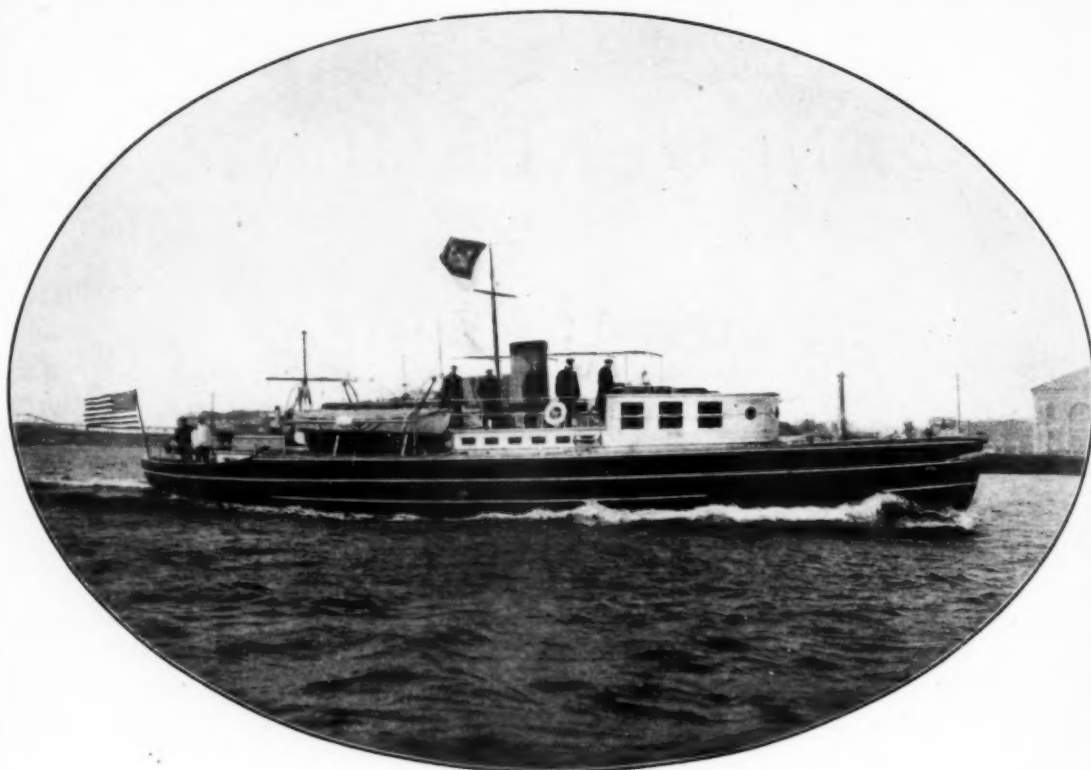
For the past year, due to greatly increased production made possible by our new factory, we have kept the price of M. & T. engines down to an extremely reasonable basis, quality considered.

Continued increase in the price of every class of raw material, as well as increased labor cost, compel us to make an advance in our prices, effective April 1, 1920, in order to maintain the high standard of excellence always found in M. & T. engines.

NEW SCHEDULE

Model	No. of Cyl.	Bore	Stroke	R.P.M.	Rated B.H.P.	Weight	Price
E-2	2	6 $\frac{1}{2}$ "	8"	425	18	1600	\$1200
E-3	3	6 $\frac{1}{2}$ "	8"	425	18	1900	1920
E-4	4	6 $\frac{1}{2}$ "	8"	450	40	2500	2640
E-6	6	6 $\frac{1}{2}$ "	8"	500	60	3000	3840
F-4	4	7 $\frac{1}{2}$ "	10"	375	60	4000	3600
J-6	6	7 $\frac{1}{4}$ "	9"	1400	400	3350	15000
K-6	6	6 $\frac{1}{4}$ "	7 $\frac{3}{4}$ "	1600	300	2100	7500

Murray & Tregurtha Corp.
Atlantic, Mass.



76,412 Miles in Eight Years

The pair of 80 H.P. M. & T. engines in WAH-TA-WAH, U. S. Engineer Dept. inspection vessel, Capt. Jackson commanding, have given convincing proof of their reliability and staying powers.

Furthermore, an accurate record kept of gasoline consumption since April 3, 1912, when the engines were installed, shows the extremely economical average of 6/10 pint per horsepower per hour.

WAH-TA-WAH is a staunchly built cutter type hull, 85' x 15'. Her seaworthy qualities, as well as the confidence reposed in the M. & T. engines, are well shown by the fact that she makes trips from Boston to New York right round the outside of Long Island. WAH-TA-WAH is often driven day and night, covering the coast from Maine to Philadelphia, with occasional side trips to the Great Lakes.

Despite the fact that the two M. & T.'s have been driven practically 10,000 miles a year for eight successive years, the repair bill has been negligible, and the engines are in good running order today.

ARE YOU INTERESTED IN

"The Engine that Outlasts the Boat"

Murray & Tregurtha Corp.

Atlantic, Mass.



Marvelous New Ignition Current

IT'S a safe and happy motor boat trip when the engine, connected up to a Columbia Multiple Dry Battery, spins along with never a miss.

**Here's a Single Dry Battery
4 to 15 Cellpower
Absolutely Waterproof**

Not a joint to rattle loose; not a spot that can rust; both terminals insulated; it's so thoroughly and permanently protected from water, you could actually submerge it without a worry.

Just one solid package of purposeful power—built for motor boat ignition—built for *your* motor boat.

**Get a Columbia Multiple Dry Battery No. 356
Today—Make Your Trip Both Safe and Happy**



**Ask for Columbia
Multiple No. 356 for
Your Lights, Also**

NATIONAL CARBON COMPANY
Incorporated

Cleveland, Ohio San Francisco, Calif.

Canadian National Carbon Co., Limited, Toronto, Canada

Columbia Dry and Storage Batteries

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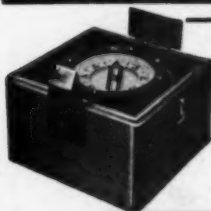
CUT RATE MARINE SUPPLY HOUSE

Everything for Motor Boats



Catalogue mailed free

E. J. WILLIS CO. 85 Chambers St. New York City



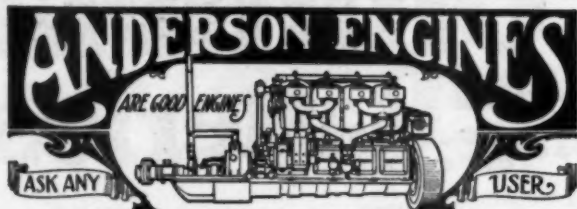
UNDERLIGHTED COMPASSES

save eye strain. You don't mind your trick at the wheel with a "Perfect" Underlighted Compass. Send for interesting catalogue and get acquainted with our instruments, Compasses, "Cole" Course Protractor, Bearing Finders, Peloruses and Stands.

MARINE COMPASS COMPANY

Box 45, Bryantville

Massachusetts



Main Office: 4032 No. Rockwell St., Chicago, U. S. A.

At the Traps with Pete Carney

(Continued from page 42)

The original idea on trapshooting was to have each contestant in the registered trapshooting tournaments of 1919 pay one-quarter cent a target, but this plan was not pushed and only \$346 was turned over to the American Trapshooting Association.

As the trapshooting body had informed the American Olympic committee that it would take care of the expenses of the trapshooters the only thing for them to do was to go through with the plan. That the matter might be adjusted satisfactorily to the amateur trapshooters, a committee of amateurs was named to select the team and devise ways and means of seeing that the team got to Belgium. This committee is made up of Jay Clark, Jr., of Worcester, Mass.; E. P. Mathewson, of Anaconda, Mont., and Ralph H. Spotts, of New York, with Mr. Clark as the representative to the American Olympic Committee.

The original idea for the sending a team of trapshooters to Belgium was the selection of the ten highest men in the 1919 averages on 2,000 or more targets, but with the failure of the voluntary contribution plan, this scheme died, too, and the present idea of the Committee, as we understand it, is to send not more than ten men who will pay their own expenses and who will agree to practice the Continental style of shooting for some time previous to the Olympic matches.

No team of trapshooters from the United States would be complete without the four trapshooters we have already mentioned. Each of the four shooters is the champion of his state.

In the Olympic games it is more than likely that five men will comprise the team. Now, all that is wanted is another high class shooter to fit in with this combination.

Trade Literature

(Continued from page 64)

New catalogs have been issued by the dealers below, and interested readers of *MoToR Boating* will be supplied with a copy on request. It is only necessary to send your request to them.

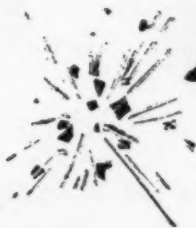
How to Use Valspar on Boats is the name of an interesting little booklet just off the press which should prove particularly useful to all motor boatmen at this time of year. *Valentine & Co.*, 456 Fourth Ave., New York City, will be glad to send you a copy.

The *Caille Perfection Motor Co.*, of Detroit, Mich., have just sent us an interesting catalog with complete descriptions of their entire range of two-cycle marine motors from 2½ to 30 h.p., as well as their Aristocrat four-cycle motor of 14 h.p.

Frisbie Valve-in-Head Motors is the name of the descriptive catalog of this friendly motor just published by the *Frisbie Co.*, of Middletown, Conn. These are built in all sizes from 5 h.p. single-cylinder to the largest one of the group of 75 h.p. This catalog is unusually complete and describes every detail of these motors minutely.

The *Carlyle-Johnson Machine Co.*, of Manchester, Conn., have issued a catalog of their friction clutches as applied to machine building. This furnished complete information for the control of all types and sizes of machine tools and is of interest to the shop manager.

E. J. Willis Company have issued a new 1920 edition of their profusely illustrated accessories catalog. This gives special net prices and other interesting information.



Dead Bird!

"Pull"—the click of the trap—the swish of the "bird" as it quarters to the left—the instantaneous adjustment for angle and lead—the snappy "crack" of the gun—a shattered "clay"—"Dead Bird"!

Thrilling! If you have never shot over a trap you will never know *how* thrilling. Don't miss it. Trapshooting will give you more real fun and sport than you can imagine.

There is probably a gun club nearby—go and watch a shoot. Try your hand—and you'll shoot regularly.

Trapshooting in your own backyard

Trapshooting today is not confined to gun clubs. You can buy a small-bore gun and hand-trap for the price of a few theatre tickets, and shoot safely in any field—any time. It's a fascinating sport for *all* the family.

In any case, to get the best results use a load that you can *depend* upon—the same day in and day out.

7 out of 10 sportsmen use

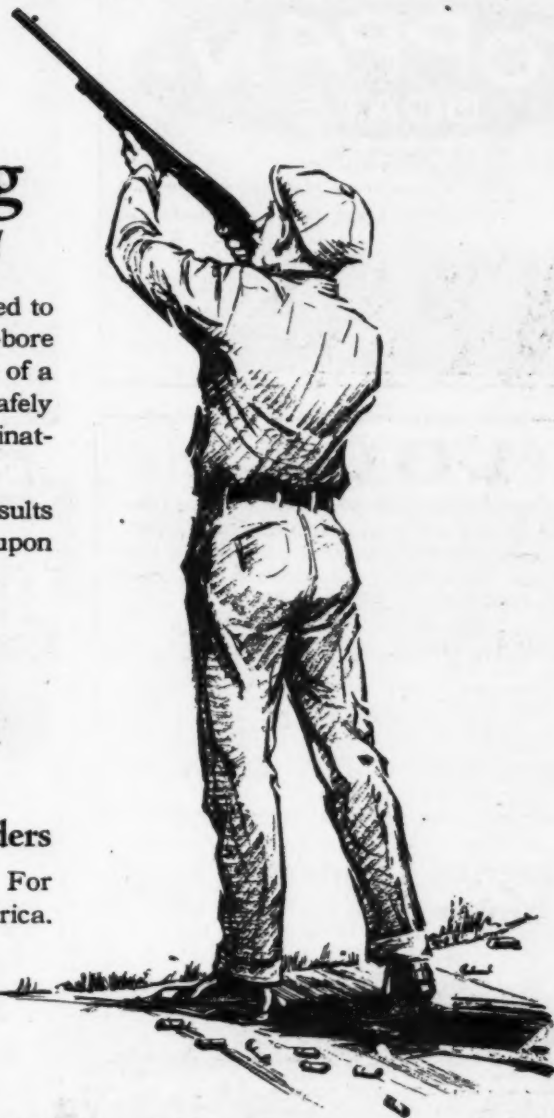


Smokeless Shotgun Powders

Fast, close-shooting, uniform. For 118 years the standard of America.

News for Rifle Shooters

All sub-calibre rifle ranges and regulation U. S. Army Target Ranges have been opened to the public. Free ammunition and instruction is furnished. We will be glad to direct you to the nearest range and send full particulars.



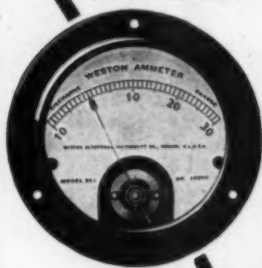
E. I. du Pont de Nemours & Company, Inc.

Sales Dept.: Rifle and Shotgun Powder Division

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JUST SUPPOSE THIS HAPPENED!

Your ignition failed suddenly—no lights, no spark—and you found yourself in a dangerous position. It couldn't happen if you had installed a



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MODEL 301 AMMETER
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It tells you exactly, and at all times, the rate of charge or discharge of the battery. You know before it is too late whether your battery is being maintained in the condition which will insure you perfect service. Write us—let us tell you about it.

Weston Electrical Instrument Co.
28 Weston Ave., Newark, N. J.
Branch Offices in the Larger Cities

NILSON BUILT

means the highest quality of Workmanship and Finish. "Honest Boats—Honestly Built."

Let us figure with you.

The Nilson Yacht Building Co., Inc.
Spring Garden Baltimore, Md.

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22 ft. Dory launch. 9-12 H.P. Universal motor.
22 ft. lap straked power dory with Universal motor.
18 ft. Three in One Power Dory.
16 ft. Hydroplane Bullet. All shown at New York Show. Also high grade 18 ft. Special tender.

Dept. M **TOPPAN BOAT MFG. CO.** Medford, Mass.



STEARNS MCKAY
**MARBLEHEAD
ANTI FOULING
GREEN
BOTTOM PAINT**

FOR STEEL
OR
WOOD
STAYS CLEAN

Gives the greatest efficiency with the smallest fuel consumption. Semi-enamel White for topsides.
Stearns-McKay Mfg. Co.
Marblehead, Mass.



WHICH BOAT WASTES FUEL?

LOOK

Can you equal these prices? Class I outfit, consisting of Bow Combination Light, Stern Light, Life Preserver Pillow, Fire Extinguisher and two tone Horn complete. Guaranteed to pass Government inspection, \$4.50.

Pol. Brass Bilge Pump.....	\$2.10
12" Steering Wheel.....	1.40
Brass Fog Bells.....	1.20
Two tone pol. brass Horn.....	.90

Class II Equipment, \$10.00.

Complete Catalogue on Request

UNIVERSAL MOTOR BOAT SUPPLY CO.
Atlantic Highlands, N. J.

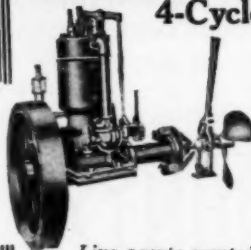
America's Finest Motor Boats



Whatever you want—Runabout, Speed Boat, Cruiser, Row-boat or Canoe.

There's a **Racine** Made for you

—or we will design and build one to meet your needs.
Tell us the type of boat in which you are interested and we will mail you our special catalog immediately.
RACINE BOAT COMPANY, 1812 Clark St., Racine, Wisconsin

STANDARD KID**4-Cycle Engines of Quality**

Made in six sizes—light, medium, and medium heavy duty. 3 h.p. to 20 h.p.—1 to 2 cylinders.

Uses either gasoline, distillate, or kerosene.

Suitable for workboats, fish skiffs, sampans, pleasure boats, etc.

Working parts interchangeable with Ford engine parts.

Live agents wanted in all parts of the world.

SEATTLE-STANDARD ENGINE MFG. CO.
SEATTLE, U. S. A.

Built by

LUDERS

*The Last Word in Yacht Designing
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**Luders Marine
Construction Company**
Stamford, Conn.



BARKER MOTORS

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Dependability Durability
Simplicity Serviceability

"Imitated but Not Equalled"

Moderate Price
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THE BARKER FACTORY
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Indicates Positive Working Condition of SPARK PLUGS



Absolutely
 Durable

Will Not Wear
 or Burn Out

Substantial — Moulded
 Composition.
 Lamp Embedded
 and Protected.

No Light — Short or open
 circuit.

Dim Light — Spark gap too
 small.

Medium Light — Spark gap
 working properly.

Bright Light — Spark gap
 too large.

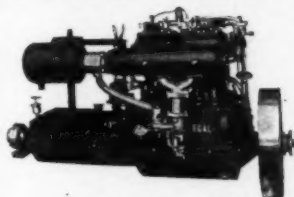
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 Have One—**SAVES TIME, MAINTENANCE**
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ORDER ONE TODAY
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 Enclosed find \$3.00 for one Flash-O-
 Light Spark Plug Tester.

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FLASH-O-LIGHT
TESTER
 FOR SPARK PLUGS

Nineteen Years of Knowing How



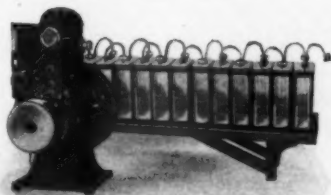
to build four cycle
 marine engines, is
 the enviable record of the

REGAL

Sizes 2 H.P. to 50 H.P. One, two and four-cylinder. Designed to operate with gasoline, distillate or kerosene.

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For yachts, stores, homes and mills. A $\frac{3}{4}$ K.W. generator. Air cooled, four-cycle, 2 H.P. motor, direct connection.

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Powered with a Sterling 4-cylinder Motor, Model F.S., 90-100 H.P., this 25' x 5' 4" hand-designed V bottom runabout, built by us for W. B. Harbeson, developed a speed of 31 miles per hour.

Richardson Boats are sturdy, seaworthy, and sure. And they are constructed with all the modern comforts that give pleasure, service and satisfaction to their owners.

Knockdown frames or complete outfit of the highest type built at the lowest possible cost.

Richardson
BOATS
 All types of quality boats Will help you enjoy your summer
 Write for literature to No. Tonawanda, N. Y.



"The Wheel with the
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*Every Little
Movement*

of

Loucks' Bronze Propeller Wheels

Has A Meaning All Its Own!

Power! Speed! Reliability!

Loucks Manufacturing Company

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Sails, Boat Covers and Canvas Covers
for All Purposes. Tents to Rent**

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Raven Brand Flags

Will be exhibited at the Show by E. J.
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Raven Brand Flags will be displayed on the
taffrail staff of the "International 32."

Look 'em over and you will see why the Raven
Brand trade mark is the recognized sign of flag
quality.

Agents for Coast and Geodetic Survey Charts

Betsy Ross Flag Co., Inc.

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Correspondence solicited on special flags,
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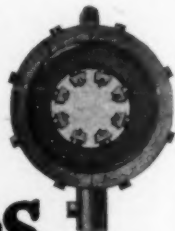
**A Hand Tool Producing Accurate Results That
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Adjustable on all types of motors.
One simple operation for adjustment.
Guaranteed accuracy to one-quarter
thousandths of an inch.
Can be operated without removing shaft
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A Peters' Crankshaft Grinder will true
egg-shaped crank pins in one-fifth the
time ordinarily required by any other
method.

Price, \$75.00.

Aluminum Brazing Solder Company
Widener Building Philadelphia, Pa.



Patented

PETERS
CRANKSHAFT GRINDER

Freeport Engine Co

450 Freeport St

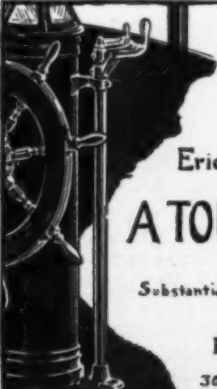
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The
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A TOUCH OF DISTINCTION
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A high grade guaranteed line of Light and
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A dependable, self contained means for providing your engine with intense, flaming ignition sparks. Quality construction and the finest materials protect you against trouble.

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Main Office and Works—Springfield, Mass.
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*Be Satisfied
Specify Bosch*



AMERICA'S SUPREME

IGNITION SYSTEM

Absolutely Essential Equipment

Ever-Warm

You Can't Chill

Your first duty to yourself, your crew, and your guests is to provide for the peace of mind and safety of everyone on your boat.

There is but one way you can ensure this—by equipping your boat fully with Ever-Warm Safety Suits—one for everyone on board.

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You Can't Drown

Not air-inflated, but buoyant in itself the Ever-Warm Safety Suit slips on in a second like a Union Suit. You can't chill, you can't drown. When Hawker and Grieve lost their air-plane in the Atlantic, they sat on the wreck with the waves breaking over them, warm and dry in their EVER-WARM Safety Suits. They may save your life some day. Approved and used by the U. S. Navy.



100 PER CENT SAFETY AT SEA

Every Boat Should Be Fully Equipped with Ever-Warm Safety-Suits

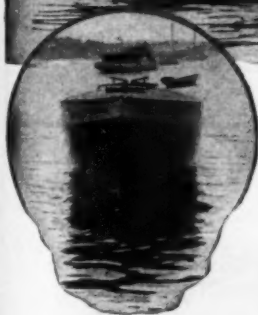
Ocean Voyagers should Ask About Rental Plan.
Pamphlet "22" tells the complete story.

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We build all sizes and types, but have made a specialty of this design.

CONSTRUCTION and workmanship is the best—equal in every respect to the high class of yacht work on which our reputation has been based for over 20 years. The lines are very fast, the launch is safe and able in severe conditions of wind and sea, and it has a large cockpit and very comfortable accommodations below decks. It is equally adapted to day service or cruising.

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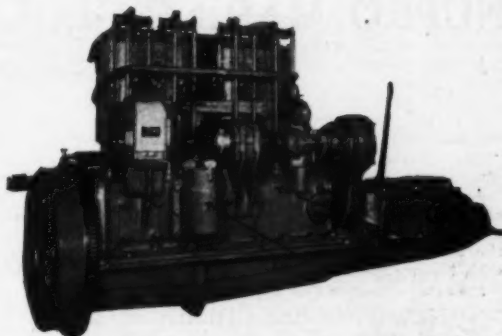


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Write for Catalogue

Knox Motors Associates

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DUPONT Marine Motors are built to meet the requirements of the most exacting owner. duPont Engineers have combined a reliability which is absolute with complete accessibility in these power units.

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Add one cent per letter for Parcel Post.

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You Can Build Your Own Boat

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By the **BROOKS K. D. SYSTEM**



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Send for catalogue
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We carry the most complete assortment of motor boat supplies in New York.

MARINE HARDWARE

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Special attention given to commercial, export and mail orders.

Owing to price changes our catalog is temporarily out of print. Quotations promptly furnished on anything you need.

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NUPRO MARINE GLUE

(American Standard)
INTRODUCED 1907

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eliminates the necessity of making certain repairs every year. Deck seams and seams in the hull below the water line can be made tight and kept leak proof with Nupro Marine Glue and Hull Seam Composition.

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Southland 45-Foot Express Cruisers

A stock boat as fine as any built to order. Selected white oak frames, clear cypress planking. Inside finish white, with mahogany trim; outside finish in mahogany.

Length 45'-0"	Cruising radius 375 miles
Beam 10'-6"	Accommodates four and crew
Draft 3'-3"	Speed 22 knots and better

Power—One 8 cylinder Model FM Sterling

SOUTHLAND STEAMSHIP CO.

Shipbuilding Department — Savannah, Georgia

IMPROVED MOTOR BOAT CLOSET

FIGURE 1404

Dimensions: 18 x 18 x 11 in. high to top of bowl; 2 3/4 in. cylinder. For above or below water line.



The best little closet on the market today, possessing many of the advantages of the large size toilet. All brass and porcelain. Oak seat and cover.

All prices subject to market advances, which are continually changing.

THE J. H. CURTISS CO.

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THE 1920 CATALOGUE

OF

DURKEE'S HARDWARE FOR WET PLACES

Contains 1068 pages of everything the average boat owner wants to have information about. Send 25 cents today to cover cost of mailing. Catalogues are sent in the order requests are received.

AN INVALUABLE AID TO EVERY BOAT OWNER



2 South Street, New York City

Factories at Grassmere, Borough of Richmond
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**"Stands by"
At the Crucial
Moment!**

Stands the severe tests of motor-boating service.

The SOOTLESS is leak-proof, oil-proof, heat-proof. Mica-insulated, nickel-tipped firing-points practically self-cleaning. Protected by extra-heavy brass jacket.

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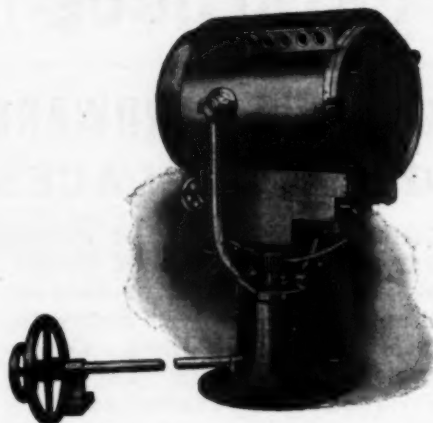
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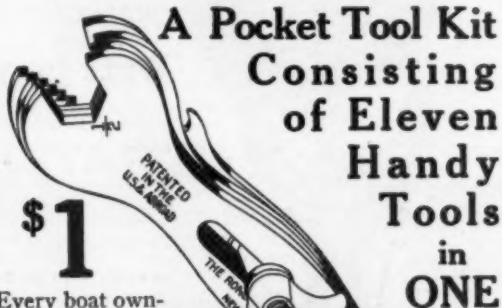
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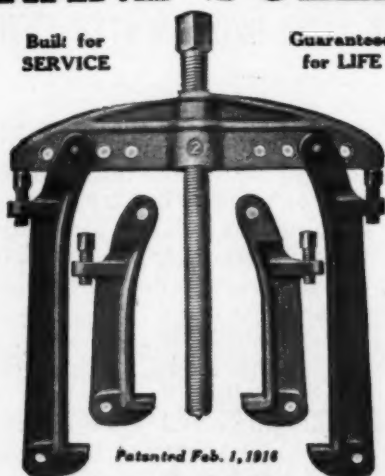
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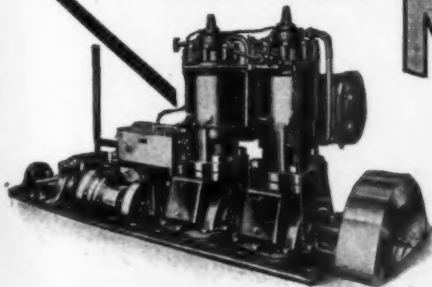
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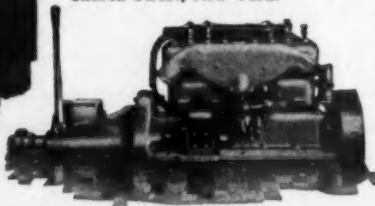
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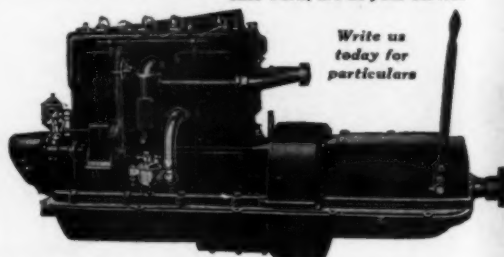
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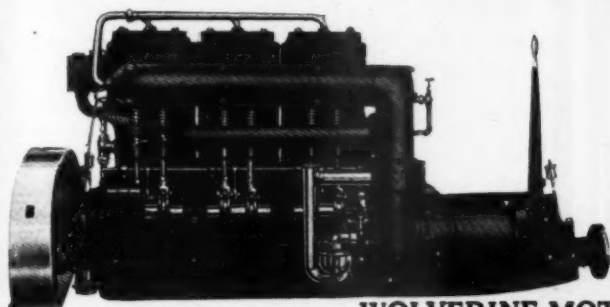
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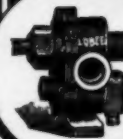
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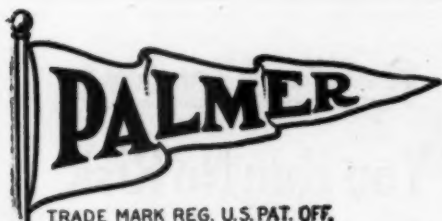
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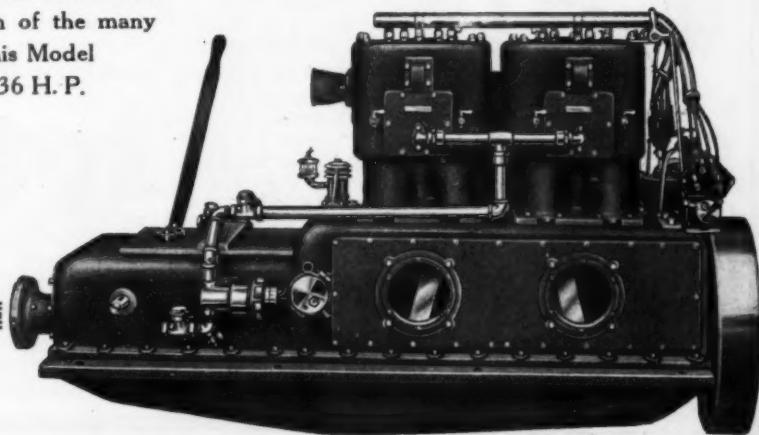
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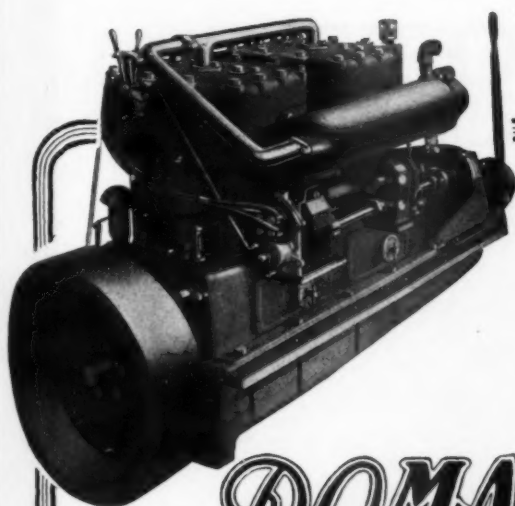
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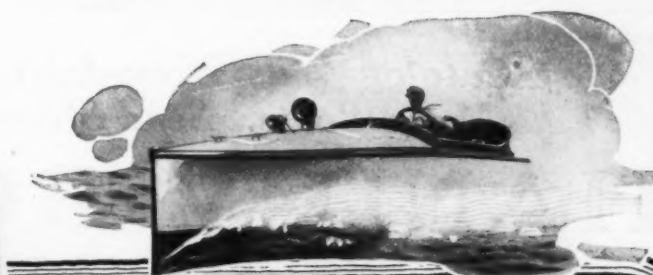
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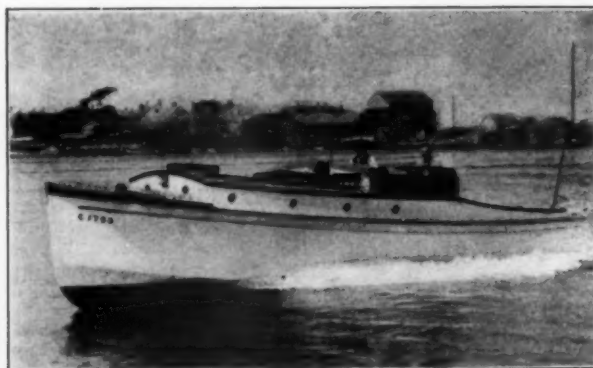
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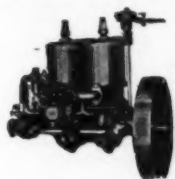


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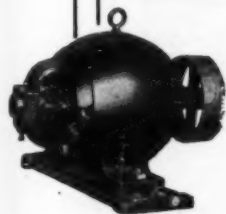
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K-1, 2½ H.P., 36 lb.



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Whether it's a runabout, cruiser, yacht or commercial boat, we have the ideal lighting and ignition system for you. A proven product of 15 years' actual use by the Motor Boat Trade.

"DAYTON" MOTOR BOAT LIGHTING AND IGNITION SYSTEMS

Made up in combinations of Dynamo, Battery and Switchboard for water craft of every description.

6 - 12 - 32 Volts

4 to 40 Lights

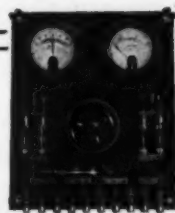
Catalog upon request.

THE A-C ELECTRICAL MFG. CO.

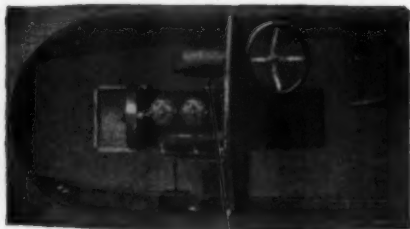
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OHIO, U. S. A.

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The Gordon Silencer and Under-Water Exhaust

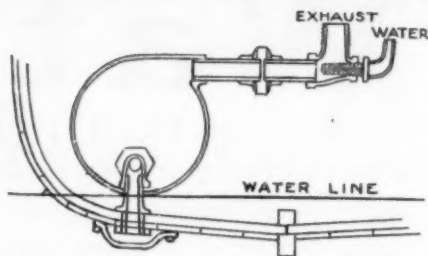


No Noise No Smoke
No Pounding No Grease
Does not retard motor

**With Fresh or Salt
Water Fittings**

F. O. B. Cleveland

\$12.00



The above cut shows the usual method of installation.

Outfit Includes:

Expansion chamber, under-water exhaust shoe, pipe with locknut for connections through the hull. Street L on expansion chamber. Outboard pipe connection on expansion chamber $1\frac{1}{2}$ in. for engine exhaust 2 in.

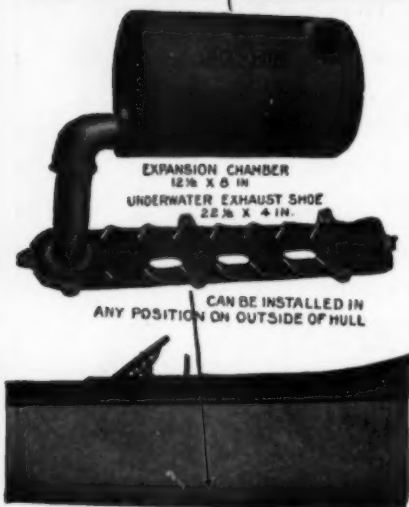
The expansion chamber or silencer can easily be installed in any convenient place in the boat. Under a seat or locker.

The under-water exhaust shoe should be placed as near as possible to the silencer at a point lower than the bottom of the silencer.

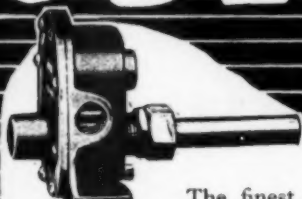
With this installation all overflow water from the engine can be led directly into the pipe which leads from the exhaust manifold to the silencer, or directly into the silencer, all pipes leading downward.

The water flowing into the chamber not only keeps it cool, but condenses the gases.

The Gordon Propeller & Manufacturing Co.
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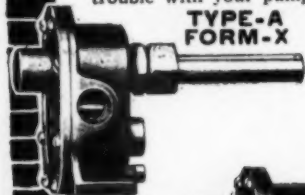


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The finest power plant made will not operate properly if it is equipped with an inferior pump, whether it supplies water, fuel or oil.

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are built especially for marine use—they are made to withstand the hard service encountered in use on board boat—Oberdorfer Bronze Geared Pumps are noiseless, automatic, compact and reliable. The supply of water, fuel or oil is governed entirely by the motor—there is never an over or under supply. If you have ever had trouble with your pump you will find a world of satisfaction in the trouble-proof Oberdorfer.



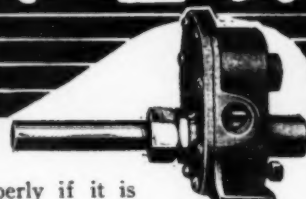
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If you own a boat powered with an internal combustion engine you will be interested in our new book on pumps. Your copy is ready for you—it comes free on your request.

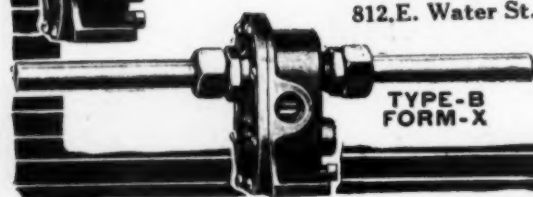
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812 E. Water St.

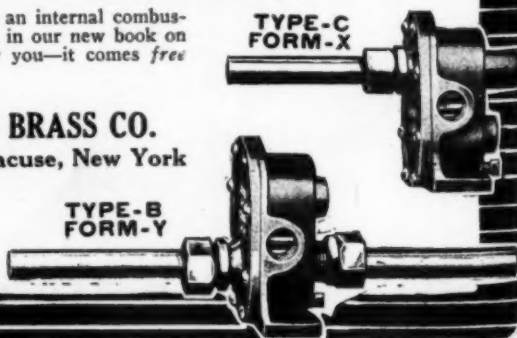
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**TYPE-B
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Sterling

THE ENGINE REFINEMENT
For the
finest boats that float



About Speed—

The number of Sterling powered runabouts which have made speeds of 35 to 42 miles per hour during the past 5 or 6 years with our stock 4, 6 and 8 cylinder $5\frac{1}{2}$ " bore motors is legion. As an example, the HOOSIER IV, which has repeatedly shown over 36 miles per hour, is illustrated. HOOSIER IV established a new Southern record at Miami in 1919, and immediately thereafter a number of mile runs at 36 miles per hour were exhibited. She is equipped with a Model F 6-cylinder Sterling rated at 145 H.P.

Forty miles per hour has been made by HOOSIER IV at Detroit, KIOTA at Toronto, J.M.R. at Atlantic City, BOBOLINK at Lake George, and a host of speedy predecessors, with Sterling power plants that averaged 6 to 10 pounds per H.P.; demonstrating that, with sufficient power to drive the V-bottom runabout to planing position, weight up to 10 lbs. per H.P. can be carried. If, as in the case of Sterlings, a reasonable weight consists of refined metals, it is an asset making for dependability. And the Dual Valve Sterlings for 1920, weighing $8\frac{1}{2}$ pounds to the H.P., surpass all previous motors in sustained power.

The Dual Valve $5\frac{3}{4}$ " bore, 6-cylinder Sterling, weighing $8\frac{1}{2}$ pounds to the H.P. is conservatively rated at 225 H.P. (at 1500 R.P.M.) for continuous marine service. Conservatively, since over 240 H.P. is delivered by this motor. It is a motor that has been developed through years and years of marine work. It assures

Speed Second to None

A seaworthy and comfortable boat of sufficient length and beam to make it worth while.

At a cost practically equal to that of a smaller boat of lesser capacity.

A boat that will be a permanent investment, giving gratifying service for many years and finally, commanding a far higher resale price.

4, 6 and 8 cylinders 150, 225, 300 H.P.

May we send literature?

STERLING ENGINE COMPANY

1254 Niagara Street

Buffalo, N. Y.

The DUAL VALVE Sterlings have already established 3 new world's records, including the long distance ocean cruiser record at Miami, 1920. See the Sterling advertisement on inside back cover.

KERMATH

*"America's Standard
Four Cycle Engine"*

**Here's a Fact About Kermath Engines
That's Worth Knowing Before You Buy**

WHEN you come to decide the question of what engine your boat should be equipped with, consider the fact that sixty per cent of all the boat builders of the world are specifying Kermath Marine Engines as standard equipment.

mean a lot to a man in determining which engine will best serve him.

The performance of Kermath Marine Engines during long years of constant service has convinced even the most skeptical that here at last is an engine that you know

that here at last is an engine that you know

It is an established fact that long experience at the business has taught these experts that their recommendations must be based on something more than mere talk. They look for Real engine performance and get the engine that gives it to them.

Such universal endorsement should

will run when you want it to. And when it's all said and done that is the really important thing in a marine engine.

Supply a Kermath with gasoline and oil and watch it perform—and without shaking itself or the boat to pieces, vibration having been minimized. Running twice as long on a like amount of fuel is another pleasing thing about a Kermath.

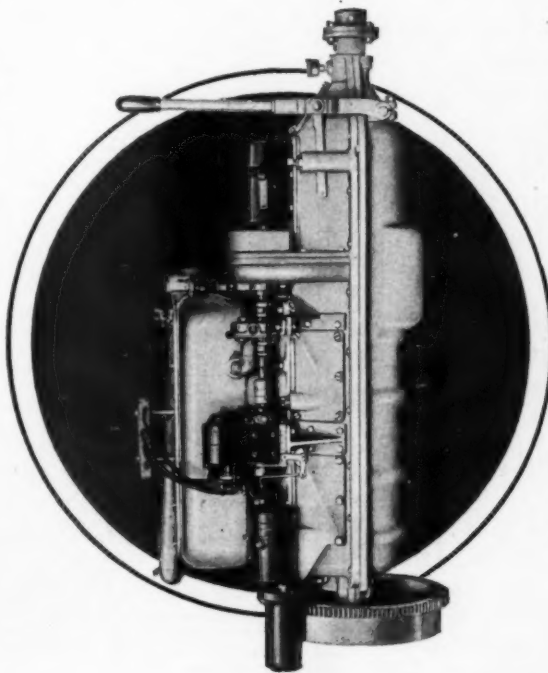
Time has proven the practicability of making an engine that delivers results.

It will be to your advantage to get in touch with the best dealer in your vicinity. He sells Kermath engines and is an expert in his line—and a good man to know.

You will find a Kermath of the size and type you want. Prices range from \$400.00 to \$550.00 depending upon the equipment furnished.

Write for our interesting circular.

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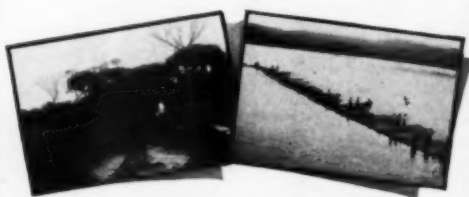


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KERMATH Mfg Co.
DETROIT MICHIGAN.



LUMBER and VENEERS



Left: Logs in Africa ready for delivery to coast.
Right: Raft of logs being towed out to steamer in Mexico.

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BRANCHES

44 North Market Avenue
Grand Rapids, Mich.

2256 Lumber Street
Chicago, Ill.

Louisiana Motor Fleet Does Useful Work

(Continued from page 22)

passengers from large steamers in distress in the gulf. They form at once a law-enforcing patrol and a fleet of life-savers, while at the same time they attend to the protection of the millions of wild ducks and other game birds and the deer, squirrels, rabbits and other game animals. They even exercise control over the fur industry of the state, worth more than \$1,000,000 a year, owing to the tremendous number of muskrat skins which are shipped from the state and which form the backbone of the fur trade of the United States.

As has been said, the fleet consists of twelve boats, valued at approximately \$60,000, and it is probable that one or two more boats will be added to it during the coming year, if the plans of Commissioner Alexander are carried out, as there is every prospect that they will be, owing to the great success he has made of the work of the department during the past year. The flagship of the fleet is Alexandria, a 90-foot cruiser, equipped with two 50-h.p. engines, which is in constant use for trips on the gulf, on inspection trips by the commissioner to distant points such as remote oyster beds, game bird reservations, the Texas border, the Mississippi Sound fish and oyster and shrimp packeries, and other places that may require the individual attention of the head of the department.

Another important member of the fleet is the armed patrol boat, Louisiana, 60 feet long, equipped with two 20-h.p. engines and used in making extended patrols of the whole coastline of the state. In patrolling and in making surveys of the shallow water marshes of the state, wherein are located the greater part of the oyster beds and the shrimping waters, Louisiana is particularly useful, as she draws only 2½ feet, and yet has accommodations for about a dozen men in addition to her crew.

Baton Rouge, a 50-foot patrol boat, also equipped with two 20-h.p. engines, drawing only 4½ feet yet able to carry a number of men, also has proved very efficient in patrolling important oyster territory, where the pirates are apt to raid, and in attending to the enforcement of all the rules and regulations of the department among Louisiana oyster fishermen, as well as among those engaged in carrying oysters from the Louisiana marshes to the canneries on the Mississippi coast. In summer it stands guard over the bird-breeding islands along the gulf coast, and is also used for rough work in the open sea. Like Louisiana, Baton Rouge also carries a one-pound rapid-fire gun, set well forward; for use against oyster pirates and other poachers.

Patrolling the interior waters of the state and keeping a watchful eye on the large and valuable fresh-water fisheries, is Opeicusas, 46 feet long, with draft of 3 feet, and equipped with a 30-h.p. engine. She is also used in patrolling that section of the oyster territory which lies west of Bayou Lafourche, and frequently makes long patrols clear to the Texas line, part of which have to be run on the open gulf.

To the east of the Sabine river of Texas, the territory patrolled by Opelousas overlaps that patrolled by Brant, a 35-foot boat, with a 15-h.p. engine, with headquarters at Lake Charles, La. Brant and her crew devote their time to the investigation and inspection of game conditions of far western Louisiana, the enforcement of the game laws, collection of hunting and fishing licenses, and patrolling oyster territory there.

Dos-Gris, another 35-footer, with a similar engine to that of Brant, is kept at Chef Menteur, about 35 miles from New Orleans, and does duty on Lakes Pontchartrain, Borgne, and Catherine, guarding the game and fish interests of those sections. Aiding Dos-Gris is the 16-foot motor launch Branohu.

The 33-foot Pintail, with a 12-h.p. engine, is stationed on Vermillion Bay, and looks after the large trapping, game, and fishing industry in that section of the state.

In the interior of the state, especially in the Red River section, the 30-foot Pelican is constantly on duty looking after fresh-water fisheries, the fish hatcheries and the game. Having large fuel capacity, Pelican makes long trips through the fresh water streams of the state and is one of the most useful and important boats of the fleet. Its headquarters are at Jonesville. Teal, 27 feet long, with a draft of only 2 feet, but with powerful engines, giving her speed and seaworthiness, is on constant duty in the Lower Mississippi and around the three mouths of the great river. A 26-foot speed boat, Hawk, is kept in readiness at all times in New Orleans for fast trips to different parts of the state in rounding up and bringing in violators of the game and conservation laws. It is used on both sides of the river and in inland waterway trips to all parts of the state.

The launches Coot and Betsy, 17- and 20-foot boats, respectively, also belong to the fleet, the former being stationed at Biloxi, Miss., where it is used by the inspector of the conservation department in his work among the oyster and shrimp packeries of the Mississippi coast, insofar as they are concerned with the product of the Louisiana oyster beds and shrimp marshes coming in to be canned.

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What we tell
you in words
we will make
good with
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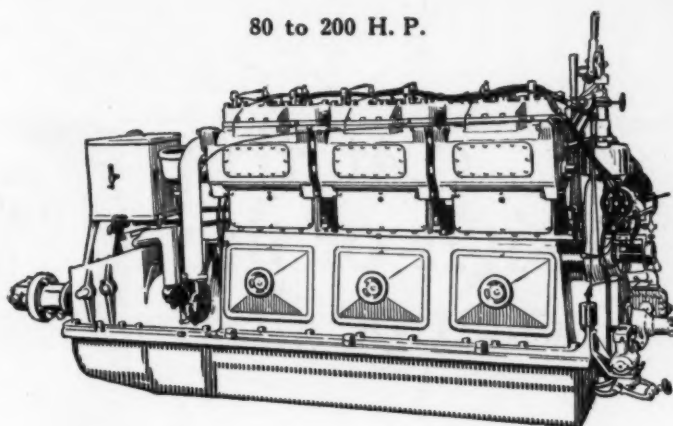
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Winton

**Gasoline
Marine Engines**

80 to 200 H. P.



These Superb, Modern Yachts

We could not crowd into this space a complete list of the fine yachts powered with Winton gasoline marine engines. Here, however, are some of the names most familiar to men and women in touch with yachting affairs:

Chieftain 106'3"	Mr. A. W. Armour.
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Superb and modern yachts, all of them. Designed by America's most able architects and constructed by renowned builders. Moreover, they are the properties of men long experienced in the ownership and operation of yachts, men who know what constitutes a real power plant, men never satisfied with less than the best.

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THERE are no "carbon-less" motor oils. Petroleum is a Hydro-carbon product and it is impossible to extract the carbon. Neither is it possible to prevent a portion of the oil from working up into the combustion chamber. Hence, there is sure to be more or less carbon deposited.

Supreme Auto Oil

Leaves Less Carbon

in the combustion chamber, as it contains no paraffine — most of the free carbon is blown out with the exhaust.

Paraffine forms a gummy substance which collects and holds the carbon, allowing the extreme heat to harden it upon the piston head. A great deal of trouble may be eliminated, therefore, by the use of SUPREME AUTO OIL.



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The only proved successful Kerosene burner for marine engines

MORE POWER, a steadier, smoother-running engine, and a tremendous saving on fuel costs—that's what the OLSEN Kerosene Vaporizer gives your boat. Tested under severest sea conditions, used steadily for months at a time, the OLSEN has proved in hundreds of cases that it does successfully convert kerosene to a high-power fuel, does give more miles per gallon than you can get from present-day gasoline, giving equal or greater efficiency.

THE OLSEN Kerosene Vaporizer is successful because simple and scientific. Fuel combustion is perfect. Carbon is practically eliminated. Every drop of fuel is converted into power. The exhaust is clean, smokeless, odorless. Lubrication is unaffected. Flexibility on all speeds is increased. Skipping, missing and stalling do not occur.

WHY continue to use costly gasoline of inferior quality when The OLSEN with kerosene will more than cut you fuel bills in half, give far more satisfaction, and pay for itself over and over again. Send today for illustrated literature of the most convincing sort.

THE OLSEN Kerosene Vaporizer is simply and quickly fitted to any regular 1" to 3" carburetor.

We are ready to appoint a few live dealers as representatives of The OLSEN. Your application will receive our immediate attention.

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214 State Street, - Boston, Mass.

Cut shows installation on a 2-cylinder Scripps Marine engine.



OUR GUARANTEE

EVERY OLSEN Kerosene Vaporizer is sold subject to our money-back guarantee. The successful operation of the OLSEN is positively guaranteed and the full purchase price will be refunded if for any reason the device proves unsatisfactory.



Tug Florence, Atlantic Gulf & Pacific Co., New York, Owners
This boat has a 3-cylinder 11x12" Wolverine engine which is equipped with an Olsen Kerosene Vaporizer.

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Trade Mark Reg. U. S. Pat. Off.

Incomparably the finest sea boat in the world

A Successful Revolution In Motor Boat Design.

Much higher speed in rough water.

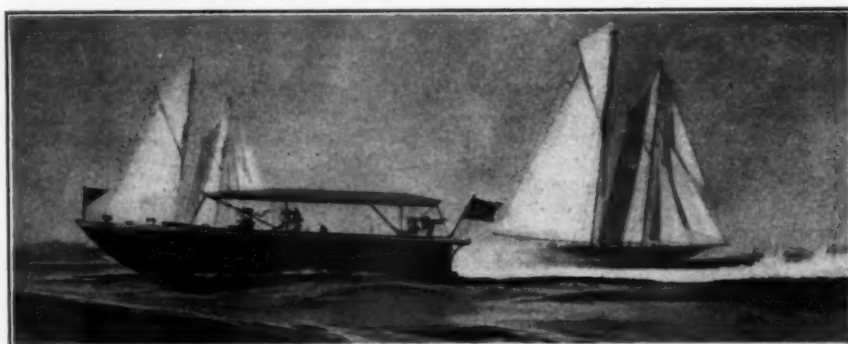
Greatly improved dryness and stability.

Absolute safety at all speeds.

*The only boats capable of running at all
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16-Foot Sea Sled



24-Foot Sea Sled at 36 Miles Per Hour

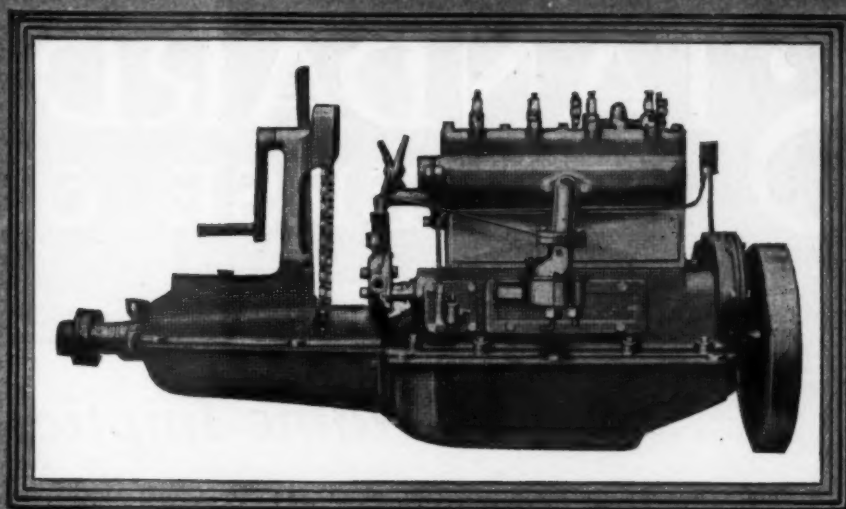


50-Foot Sea Sled at 50 Miles Per Hour

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A Standard Reverse Gear is strong, perfectly quiet, clean and trouble-proof—runs in oil and takes but little space in your boat. Ready for immediate delivery.

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Stewart Tachometer for Motor Boats
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Install a Stewart Tachometer to check up on your engine's performance. It's the most accurate instrument ever built, because constructed on the famous Stewart Magnetic Principle. Note its remarkably low price.

The Stewart Vacuum System is the one perfect gasoline feed for motor boats. Permits placing the gasoline tank away from the engine—eliminating danger. Does away with troublesome hand pressure or imperfect gravity system. With the Stewart Vacuum System

you have a steady flow of "gas" in the highest seas.

For safety's sake, install a Stewart Searchlight which projects an intense beam of light 1000 feet and a Stewart Warning Signal whose clear note can be heard a mile across the water.

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Stewart Motor Driven Warning Signal \$10⁰⁰

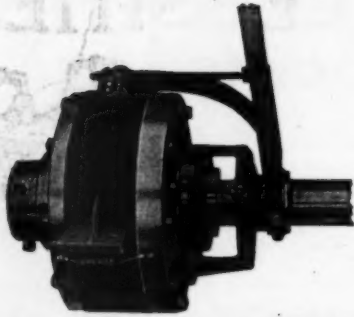


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A Reliable Bridge From Motor to Motion

YOUR motor may be as powerful as ever designed, as flexible as a fine disposition but none of this gets to the propeller except through the reverse gear. Which simply means that you can't afford any gear unless it is equal to its work.

Joess Reverse Gear is a reliable "bridge" from motor to motion—compact, well built—strong where strength is needed and equal to all requirements. You can reverse from full speed ahead to practically full speed astern—instantly and continually. Power always under perfect control.

Joess Duplex Drive Gears with their 88% Reverse Speed Ratio are especially suitable where reversings are frequent, the strain severe, and quick action is important. This gear is equally well adapted to high speed racing boats where lightness and great holding power in small compass is vital. The Misses Detroit II and III, the champions, as well as many other famous race boats, are equipped with **Joess Duplex Drive Gears**.

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"NO KICK BACK" of the motor can injure the arm that cranks with **Joess Safety Rear Starter**. Thousands in use. Noiseless Ratchet. Strength, adaptability and efficiency among its strong points.

"ONE WAY" CLUTCHES. A low price clutch for fishermen's use; also a very light powerful clutch for high speed, or for any transmission where great power is required in small compass.



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An Important
Addition to
**JOES FAMOUS
REVERSE GEARS**

**85%
Reverse
Speed
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Selected for
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by
Nelseco
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JOES HUSKY GEAR

**The Extra Heavy Duty Gear
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HERE'S a big Husky Heavy Duty Reverse Gear adapted to heavy duty motors and work boats, where hard and continued service is of vital importance.

A Few Strong Points:

HIGH RATIO OF REVERSE SPEED: If you want action on the reverse gear get a Husky Joe and you will get a reverse speed ratio of about 85 PER CENT. Compare this with other gears.

DOUBLE INTERNAL GEAR REVERSE: The strongest and most reliable type of transmission gearing known to science.

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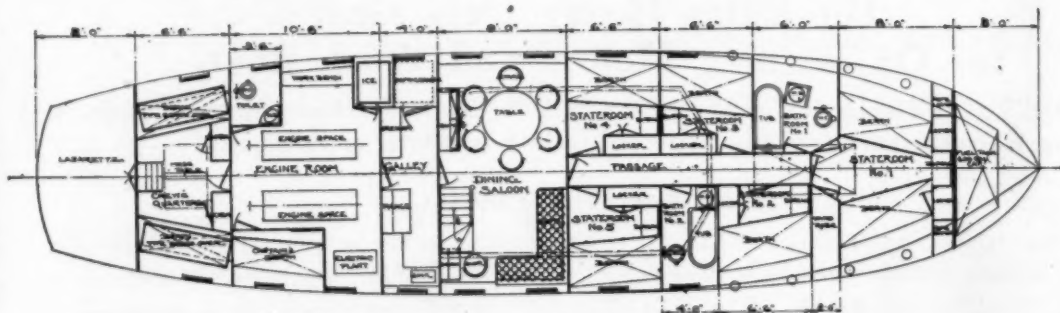
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All 6 1/2" Bore x 8 1/2" Stroke

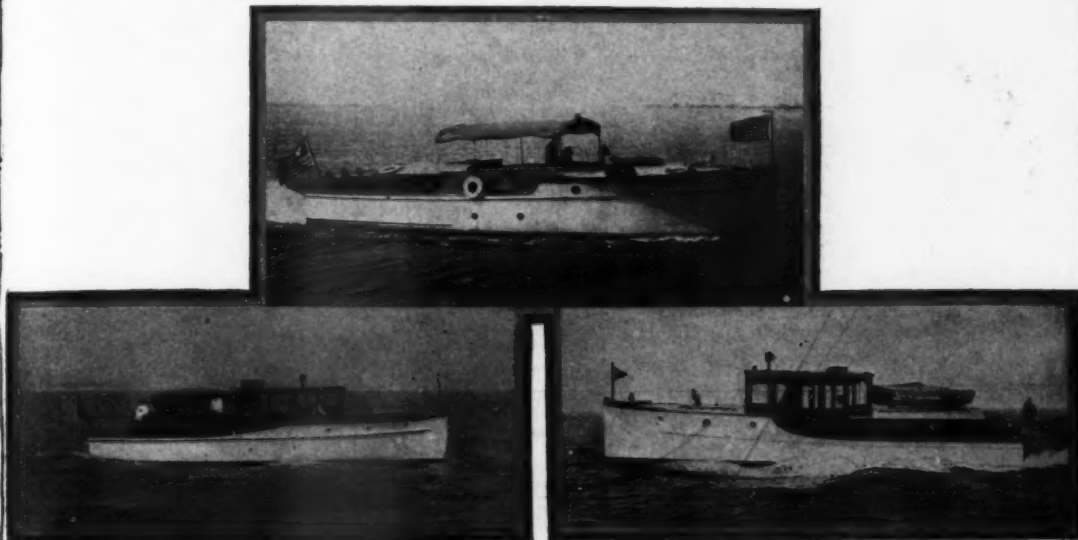
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These Boats Have It—

that velvety smoothness and quietness of motor performance that you associate with a high class limousine where objectionable vibration or noise wouldn't be tolerated for a minute. With the new smooth running Model D-6 Scripps available there is absolutely no excuse for continuing with the undesirable features that the trade knows must exist in a large four.

The builders of high class craft have felt an insistent demand for a real fine six for some time. L. L. Trip of the Albany Boat Works, Herbert Ditchburn of the Ditchburn Pleasure Boats, Ltd., H. C. Minett, John L. Hacker, and others have, from time to time, voiced the necessity of a six particularly in the larger powers.

The situation is best summed up by Mr. Volney E. Lacey, President of the Rochester Boat Works, Inc., himself an engineer of mature experience and at one time the builder of high grade motors:

"During the past season we have used four cylinder engines in our 40 foot cruisers, but we did not find them satisfactory for the purpose. There is entirely *too much vibration in any large four cylinder engine* for high class cruisers of this type. We feel that what we want is a six cylinder developing 50 to 60 HP., and what we want is a good, substantial, reliable engine completely equipped with electric starting and lighting, pressure lubrication; in fact, all of the up-to-date features."

After investigating the D-6, Mr. Lacey adopted it as standard power equipment for his 45 foot cruiser shown in the lower right hand illustration.

At the top is another 45 footer designed and built

by the Richardson Boat Company of North Tonawanda, N. Y., for Mr. Wm. Freeman of Norfolk, Va., while the lower left pictures the Northland, a 45 footer owned by Mr. Guy O. Simons, Overland Distributor for Michigan. The Northland was built by the Valley Boat Company of Saginaw, Michigan, from designs by Mr. William J. Deed.

The owners of these boats enjoy the old time Scripps reliability plus a velvety smoothness and quietness of operation that make one absolutely unmindful of the power that drives the hull. They know that the Scripps will not fail them in any crisis. It will never falter nor show any sign of let up as long as oil, gasoline or kerosene are available.

For motor installations requiring 50 HP. or more, whether for runabout or cruiser work, the D-6 Scripps offers a new sense of motor enjoyment not obtainable with any other engine in the same range of power.

For smaller boats the same high class model is offered in a four, both medium duty and high speed with power of 25 to 35 HP. and 40 to 50 HP.

In fact, the Scripps offers you a wide selection of powers from 10 to 75 HP. for various purposes: commercial, pleasure, speed or auxiliary, in either gasoline or kerosene—all time tried, perfected and in production for prompt delivery.

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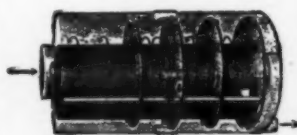
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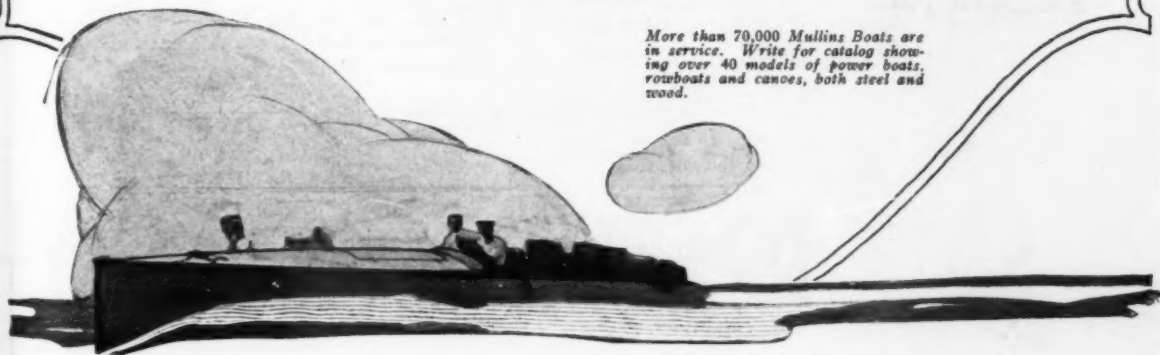
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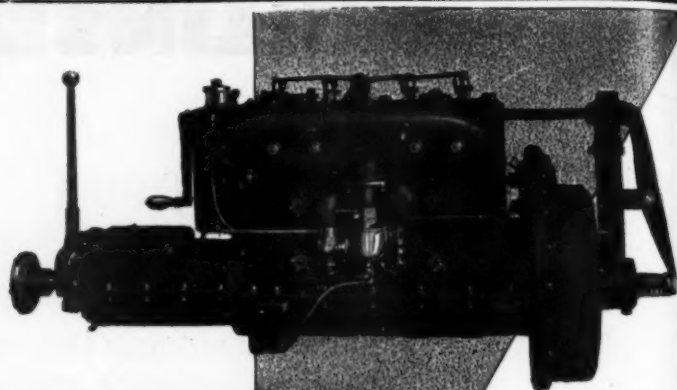
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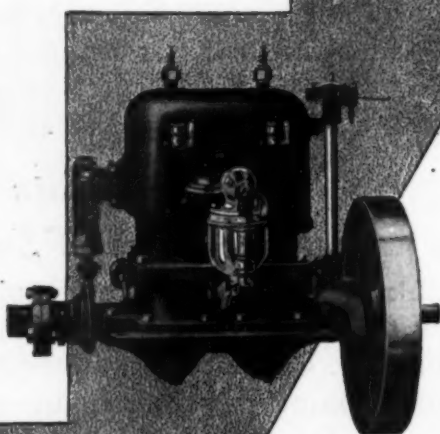
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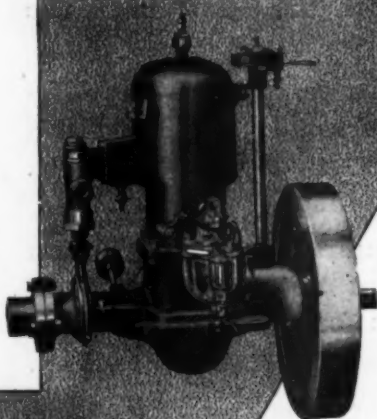


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March 4th, 1920

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Gentlemen:

On July 2nd, 3rd and 5th, the Mississippi Valley Power Boat Association will hold its annual regatta at Burlington, Iowa on the Mississippi River. Your company may not be aware of the fact, but most of the motor boat racing men are using RAJAH plugs in their motors.

The writer has been a driver and owner of one of the fastest hydro-planes for years and I have used nothing but RAJAH plugs. The only trouble we experience is in getting the right type of plugs to handle the different requirements; and as Chairman of the Race Committee of the Valley Association, I suggest that you send a representative to Burlington next July to become acquainted with the racing men themselves, learn their wants, and help them in getting the right type of RAJAH plugs in their various engines. I think such a trip would be of mutual benefit to your company and the racing men as well. I am sure the Valley Association will appreciate it.

Very truly yours,

Chas. P. Hanley
Chairman Race Committee,
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Moto-meters are being sent out with every Hall-Scott Marine Motor, as part of the regular equipment. We believe that a Moto-meter is one of the very best forms of insurance, that is insurance against trouble.

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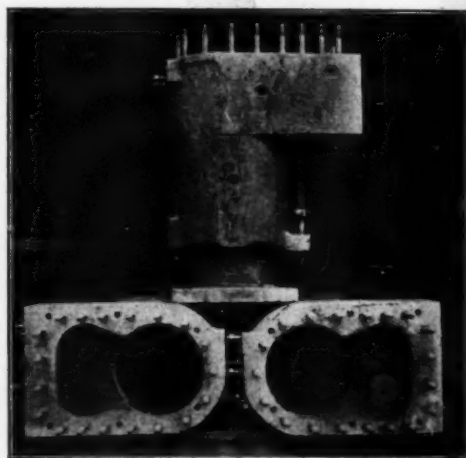
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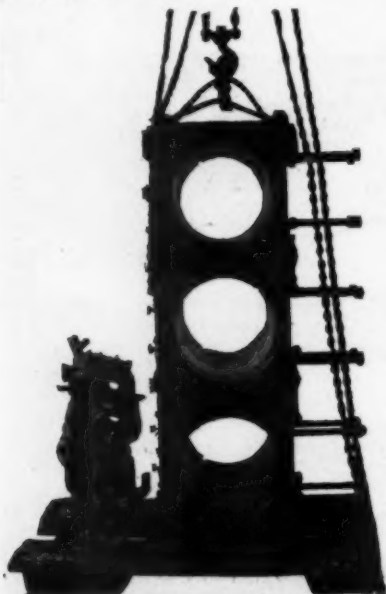
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Practical Motor Boats and Their Equipment

Volume 1.—The first volume tells you what the ideal boat for various kinds of service should be and what to look for in buying a boat. Many suggestions about decoration and hints on all kinds of equipment. All about steering gears, wireless outfits, electrical attachments, etc. Glance over the list of contents appended herewith: Hulls, Ballast and Seaworthiness; Round Bottom vs. Sharp Bilge; What are the Advantages of Flare? Raised Deck vs. Trunk Cabin; Best Proportion of Beam to Length; Selecting a New Design; The Advantages of Bilge Keels; Open or Solid Deadwood? What Makes a Hull Seaworthy? The \$1,000 Cruiser; Buying a Second-Hand Boat; Types of Bows and Sterns; Exterior Arrangement of Cruisers; The Best Cabin Arrangement; Finishing Up the Cabin; Changes in Interior Arrangement; Interior Arrangement for Open Boat; Propeller-Rudder Arrangements; Best Position for the Rudder; Advantages of the Outboard Rudder; Different Steering Positions; Steering Equipments for Motor Boats; Steering Gear for the Cruiser; The Steering Gear for a Runabout; Steering the Boat from the Side; The Electrical Equipment; Making and Wiring a Switchboard; Electric Lighting on a Motor Boat; The Inexpensive Lighting Outfit; Wiring the Small Cruiser; The Storage Battery; The Dynamo Cut-Out; Wireless for a Small Cruiser; Tender for a Thirty-foot Cruiser; Building a Folding Dinghy; Installing the Boat Bows; What is the Best Galley Arrangement; Ventilating the Galley; The Galley Stove and Its Installation; Making a Fireless Cooker; A Portable Cook Box; Running Water for the Cruiser; How to Build a Portable Table; A Table for the Open Boat.

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Volume 2.—As its title implies, this volume takes up the building of your own boat. It also covers the construction of the necessary fittings such as awning, windshield, etc. Every boatman sometime or other builds a boat, and a book of this kind will save much time and prevent many mistakes. List of contents: Types of Motor Boat Fastenings; Boat Building Woods; Laying Down a Boat's Lines; Converting a Trunk-Cabin Cruiser; A Steam Box for Amateur Builders; Joiner Between Stern and Keel; Fastening the Frames and Floors; Boring the Forgotten Limbers; Fitting the Garboard Plank; Boring the Shaftlog; Fitting the Stuffing Box; The Stern Bearings for a Cruiser; A Water-Tight Companionway; How to Canvas a Deck; Hinged Water-Tight Hatches; Making a Water-Tight Hatch; The Coaming of an Open Boat; Fitting a Swinging Port Light; Making a Self-Bailing Cockpit; A Water-Tight Window Sash; Making a Water-Tight Skylight; How to Build an Engine Housing; How to Make an Engine Cover; Building a Tool Locker; Constructing an Extension Transom; How to Make a Pipe Berth; An Ice-Box for a Cruiser; Installing a Toilet; How to Rig a Signal Mast; How to Make a Spray Hood; Fitting a Folding Windshield; An Awning for the Open Boat; A Cover for the Open Cockpit; Screens for the Side Light; A Support for the After Light; A Seat for the Man at the Wheel; Removable Davits for the Cruiser; The Boarding Steps; A Bow Rudder for Your Hydro; The Motor-Driven Club Tender.

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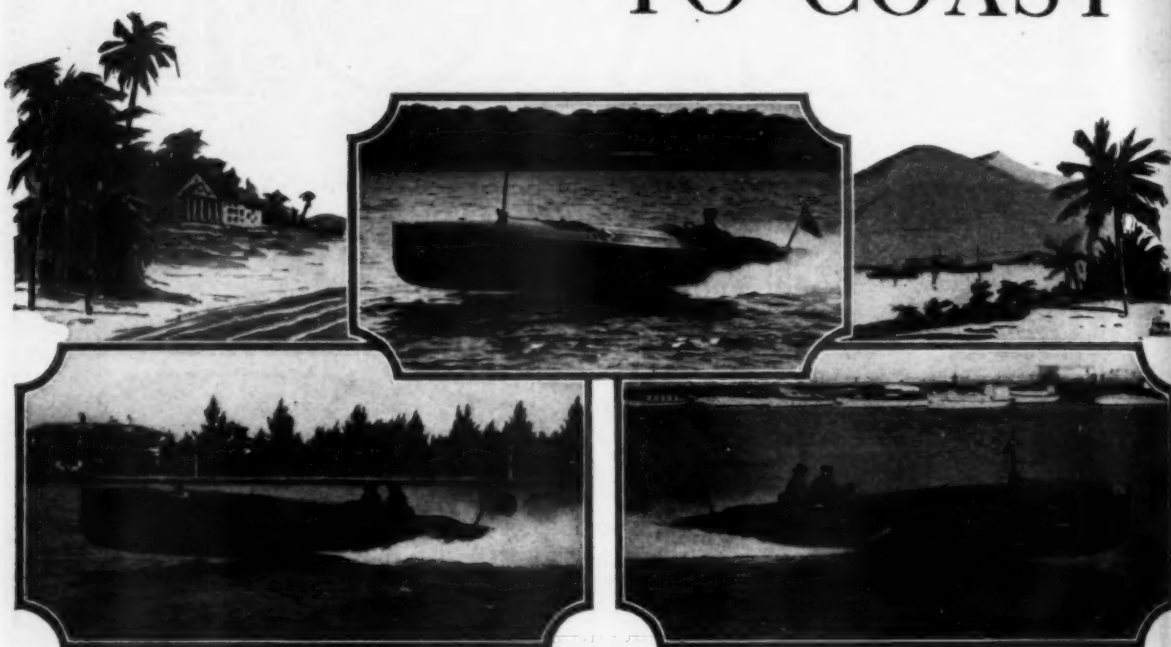
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THE reliability and durability of a marine engine has never been more clearly demonstrated than by the persistent consistency of the Hall-Scott in the 28-foot Hacker runabout 'N'Everthin, winner of the Displacement Championship at Detroit, Mich. in 1919, and of the Florida Displacement Championship of 1920.

In the Florida races, We-We a 29-foot Hacker runabout, also Hall-Scott powered, finished second to 'N'Everthin.

The six cylinder 200 H.P. Hall-Scott marine engine is 800 lbs. lighter than any other marine engine of equal power. Just think what this means to your boat.

Built in two sizes only,—four cylinders, 125 H.P. (weight 1,070 lbs.), and six cylinders, 200 H.P. (weight 1,290 lbs.).

If you intend to buy a new marine engine, you owe it to yourself to investigate the merits of the Hall-Scott. Write us to-day, and state your requirements.

HALL-SCOTT MOTOR CAR CO. INC.

37-39 ASSOCIATED SERVICE B'LDG.

BUFFALO, N. Y.

FACTORY: BERKELEY, CALIF.

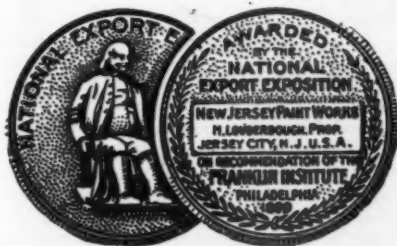
Advertising Index will be found on page 148

Paints—

For Marine Service

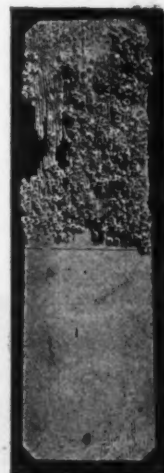


"New Jersey" Copper Paint



Brown Copper Paint
 Yacht Red Copper Paint
 (Very Bright)
 Yacht Green Copper Paint
 Bright Green Coating
 Sargasso Green
 Anti-Corrosive and Anti-Fouling Paints
 For Iron Vessels
 Elastic Seam Paint
 Yacht White
 Yacht Black
 Ship and Deck Paint
 Marine Mixed Paint
 Mast Paint
 Smoke Stack Paint
 Mastine for Masts
 New Jersey Concrete Paint
 "New Jersey" Spar Varnish

This cut represents a plank,
 one end of which was pro-
 tected with N. J. Copper
 Paint and submerged in sea
 water for five months; the
 unprotected portion is eaten
 away by salt water worms
 and is infested by barnacles.
 The portion protected with
 our copper paint is perfectly
 preserved.



Reg. Trade Mark

The Largest Manufacturers of Marine Paint Specialties in the World
for Wood and Iron Vessels

FOR SALE BY GOOD DEALERS EVERYWHERE

New Jersey Paint Works

HARRY LOUDERBOUGH, Inc.
Jersey City, New Jersey, U. S. A.

Cable Address, "JERSEY," Jersey City, New Jersey, U. S. A.

Use Western Union Telegraph Code

When writing to advertisers please mention MoToR BoATING, the National Magazine of Motor Boating

THE JOHNSON MARINE REVERSE GEAR

Why Dupont Motors Use Johnson Gears

THE accompanying letter speaks for itself. It was written while the new Dupont Motor was first being tested—just after the initial run in which the Johnson Gear was on trial for its merit. No argument that we can present will add to its force.

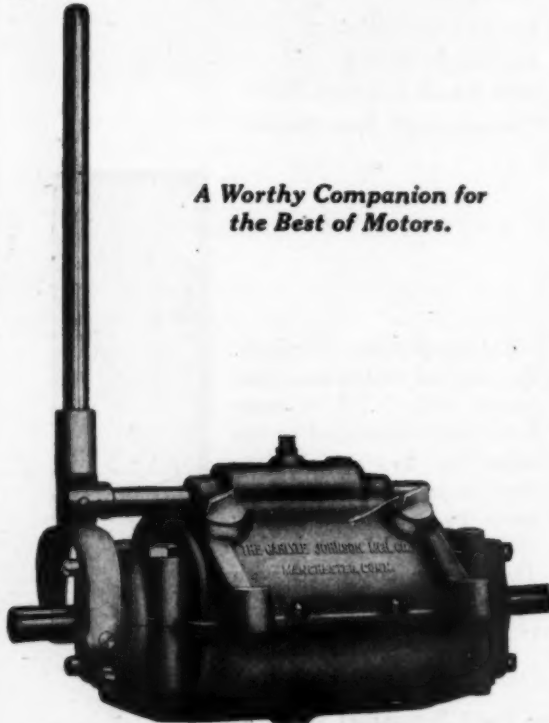
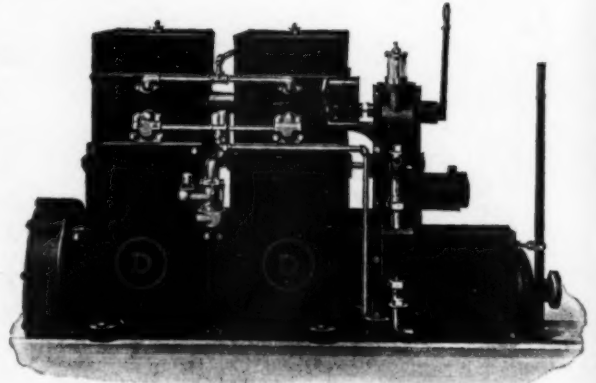
Suffice it to say that Dupont Motors are equipped with Johnson Gears. Only on the basis of a thorough investigation could Dupont say with confidence,—

"We selected this reverse gear because it has no peer for accuracy of workmanship, ease of repair, long wear and simplicity."

If you want quality in a reverse gear insist on a

JOHNSON

the enclosed, ball bearing gear—the gear that "comes up to the mark whenever it is called upon."



*A Worthy Companion for
the Best of Motors.*

Write Department 25 for full particulars.

FOREIGN AGENTS:

England: The Eftandem Co., Ltd., 22 Newman St., Oxford St., London, W. 1.
Scandinavia: Wilh. Soneson & Co., Malmo Sweden, and Copenhagen, Denmark. Oscar C. M. Knudsen, Odinsgate 4, Christiania, Norway.

France: Glaenger & Perreaud, 18 Foubourg du Temple, Paris.
Switzerland: C. Jules Megevet, 7 Rue de Malatrex, Geneva.
Australia: Edwin Wood Pty. Ltd., 231 Elizabeth St., Melbourne, Victoria.
Brazil: J. H. Lowndes Son & Co., Rue de Sao Pedro n.61, Rio de Janeiro.

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

Advertising Index will be found on page 148

Belmar Marine Motor Company
COMMENCE STREET

D

Carlyle Johnson Co.,
Manchester, Conn.

WASHINGTON, D.C.
June 30, 1919.

Gentlemen:

On the 8th. instant, the writer put out from Challenger's Landing on the return trip to Wilmington, and on reaching the mouth of the Bay, decided that the weather was too thick and returned to Challenger's Landing, at which a number of fish boats were tied up. Coming up to the landing at good speed, he was suddenly warned that he was about to run on rocks. Accordingly, he reversed at full speed and landed at the other side of the wharf. The first question that was asked him by one of the boat owners was: "What clutch are you using? I never saw a boat reverse so fast before in my life." He was sure that this will interest you, and will add that your clutch up to our 40 H.P. size appears to be entirely satisfactory under the most trying conditions. We were running from a quarter to full speed along the beach at Cape May for over an hour, had the clutch constantly in and out, reversed, and every other way, trying to keep off the beach and yet close enough not to lose our lead bearings in the heavy fog, and the clutch came to time whenever it was called upon.

Very truly yours,

George R. Feltz
Sales Manager.



No Joy in Life Surpasses That of Motor Boating

AND, thorough reliability in the marine engine is essential to that joy and pleasure.

The HESS MARINE MOTOR is the ideal power plant for yacht tender or for any boat up to and including 30 feet in length. It may also be used on larger boats as dependable power for the lighting plant.

The HESS is a one-cylinder, four-cycle motor of 4.5 h.p. and the product of twenty-two years of experience in the design and construction of marine engines back of it.

It can be operated at lower costs than any other marine engine in its class, such parts as the piston,

connecting rod, valves, valve springs, timing gears, bearings, etc., are interchangeable with those used in the FORD Motor. This is an unusually advantageous feature, as these parts can be secured from any FORD dealer or agent.

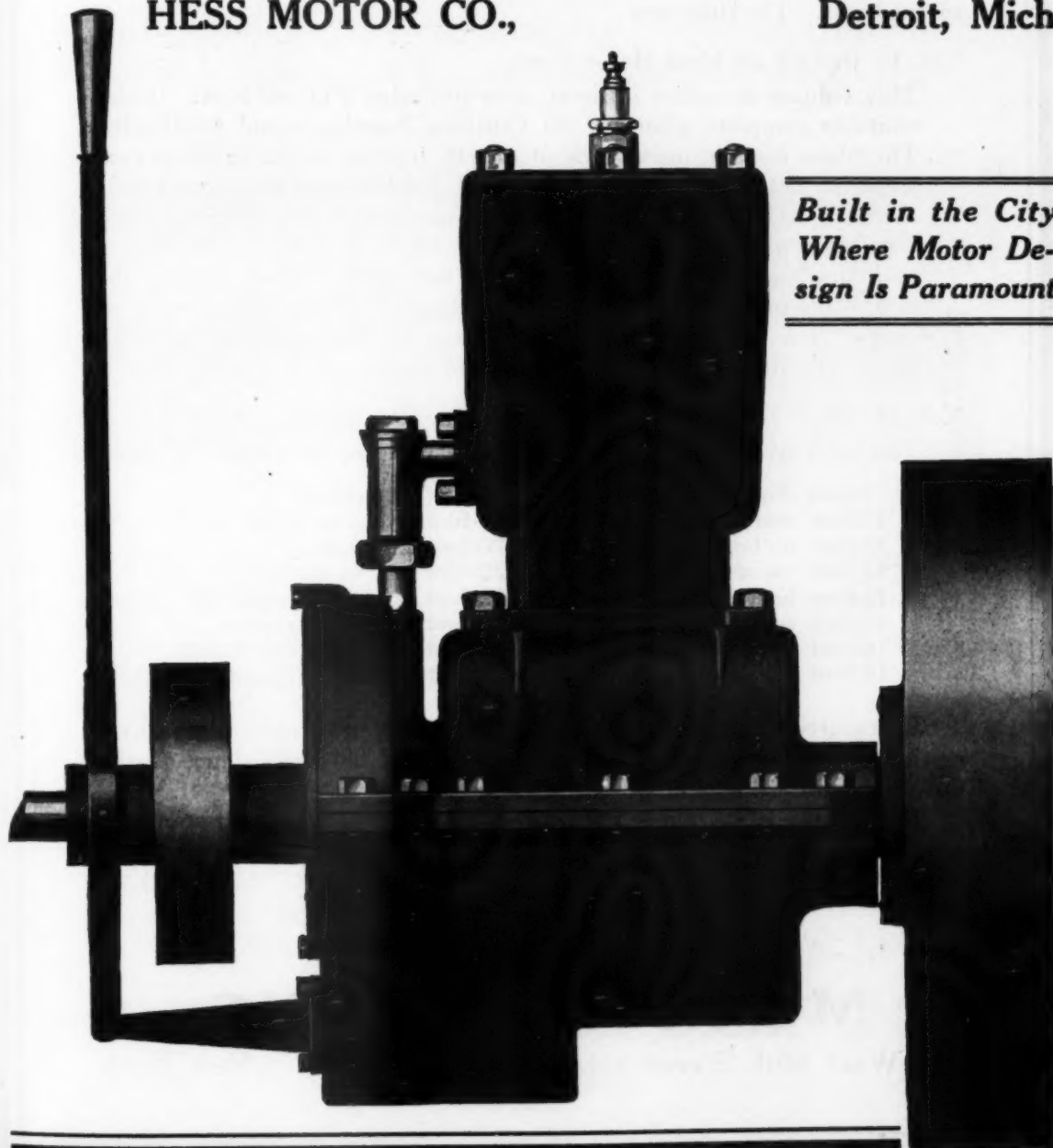
The best standard equipment is used in the HESS: Bosch Magneto, Stromberg Carburetor, Hot Spot Manifold, One-Way Clutch and Reverse Gear, etc.

Write us for full details regarding the HESS.

DEALERS, AGENTS and DISTRIBUTORS WANTED —territory now being allotted. Write, wire or 'phone us immediately.

HESS MOTOR CO.,

Detroit, Mich.



*Built in the City
Where Motor De-
sign Is Paramount*

When writing to advertisers please mention MoToR BoATiNG, the National Magazine of Motor Boating.

Two New Motor Boating Hand Books Ready

THE IDEAL SERIES

Two new MoToR BoatinG Handbooks are now ready for delivery. The two new books are known as the Ideal Series and they fill a gap in our otherwise complete line of books for Motor Boatmen.

The new books deal exclusively with designing and building small motor boats. The titles are

Vol. I—Designs of Ideal Motor Boats.

This volume describes in detail how to design a motor boat. It also contains complete plans of 30 Cruisers, Runabouts and Auxiliaries. The plans include lines, table of offsets, interior plans, profiles, construction details, etc. There is no book published at the present time which describes in everyday language the details of designing a boat according to your own tastes. The plans of Ideal Cruisers, Runabouts and Auxiliaries are complete in every particular. They include the best of the plans published in MoToR BoatinG during the past several years. The plans include boats of from 20 feet in length up to 40 feet. The drawings are all to scale and large size.

Vol. II—How To Build Sixteen Ideal Motor Boat Boats.

This book gives complete information for building the following boats:

9-foot dinghy	20-foot monoplane
10-foot mark boat	20-foot hydro-runabout
12-foot outboard motor boat	20-foot knockabout
12-foot speed boat	20-foot tunnel stern
12-foot bangabout	22-foot V-bottom runabout
13-foot sea skiff	25-foot V-bottom cruiser
16-foot sharpie	25-foot round-bottom cruiser
18-foot runabout	28-foot cruiser (Consort II)

Every article is fully illustrated with working drawings and no information or instructions are missing which would be of assistance to the novice to build his own boat.

Both of the Ideal Books are printed in large type on extra fine paper. They have been edited by Charles F. Chapman, editor of MoToR BoatinG.

Price \$2.00 each or the two books for \$3.00

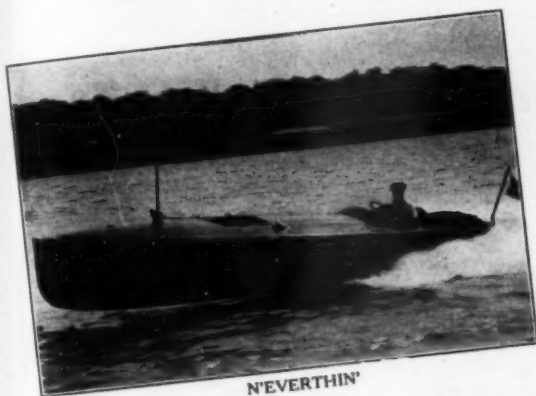
MOTOR BOATING

119 West 40th Street

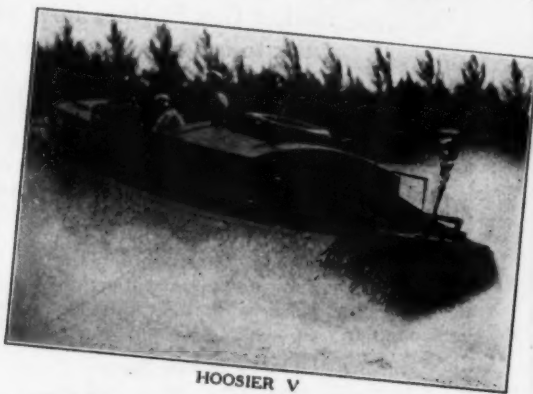
New York

AT THE MIAMI REGATTA HYDE TURBINE TYPE PROPELLERS

again proved their superiority. N'Everthin' and Hoosier V, the winning boats are both Hyde equipped.



N'EVERTHIN'



HOOSIER V

THE WINNERS

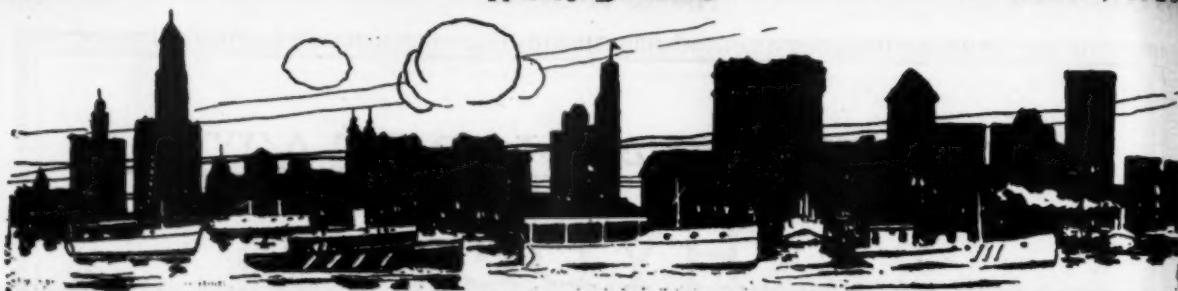
N'Everthin' defeated all comers in the runabout class while Hoosier V won the Cruiser Championship, breaking the World's Cruiser Record and establishing a new one mile mark.

Repeated Victories cannot be attributed to chance. Hyde equipped boats are consistent winners. They have won nearly all of the important races for years. Isn't this sufficient proof of why YOU should use a Hyde?

Catalog and data sheet upon request.

HYDE WINDLASS COMPANY

BATH, MAINE



TOPPING BROTHERS

MARINE HARDWARE OF EVERY DESCRIPTION

Everything Used on a Yacht or in a Yacht
Motor Boat or Sail Boat Accessories and Equipment
Barker Gas Engines in stock. Special canvas and rope
work to order. Whatever you want, try Topping Bros.

Water Soaked Shaftlogs Decrease Motor Boat's Power

Our metal adjustable shaftlog is placed inside the hull, using rubber gasket; stuffing box is also supplied with rubber gasket, thereby insuring a perfectly watertight installation; is easily adjustable to any angle desired. Easily installed in new or old boats.

The only shaftlog constructed to carry a sleeve which prevents moss or weeds from wrapping around shaft stalling the engine. The many advantages together with the low price is making this log very popular.



Made in Five Sizes

No. 1 Maximum Bore $\frac{3}{8}$ "	No. 3 Maximum Bore $1\frac{1}{8}$ "
No. 2 Maximum Bore 1"	No. 3A Maximum Bore $1\frac{1}{4}$ "
No. 4 Maximum Bore 2"	

Made in Grey Iron, Bronze or Aluminum.

These logs are furnished complete with housing, stuffing box and gaskets.

Your Hard-to-Start Engines Will Start Easy

If equipped with our double grip clutch couplings

A combination coupling and one way clutch connects the engine and propeller shaft as firmly as a sleeve or flanged coupling, requires no foundation, easily installed, requires small space. Made of close grained grey iron, will last longer than engine.

This clutch stands paramount among motor boat accessories and is making large and increasing sales daily because of its many advantages and low price. Send diameter of engine and propeller shaft and width of keyways. Made in six sizes.



"PERFECT"—Adjustable Universal Joints. Simple, Durable Interchangeable Hubs bored and fitted with standard keyways.

LET YOUR ENGINE BAIL YOU
OUT WITH A
PEQUOT POWER BILGE PUMP

TOPPING BROTHERS

Established
1885

122 CHAMBERS STREET
New York



Photo by Levick

At the New York Motor Boat Show

The 1920 Model
INTERNATIONAL
THIRTY-TWO
The First "Everybody's Motor Boat"

READY to cruise, complete in every detail, this first real standardized cruiser is the best boat value ever offered. A built-to-order cruiser of like character would cost a great deal more, if you could get one this season. You can have an International Thirty-Two right way if you wish. Modern production methods offer you a quality boat that sets a new and higher standard of value—every detail guaranteed positively by us. Design, construction and finish could not be excelled. The complete equipment is of best marine standard—the famous Kermath "Vanadium 20" power plant, with electric starter and lights, Mott plumbing, etc.

You have a choice of two models, the Raised Deck type illustrated and a fine, practical double-cabin model with two toilet rooms at a little higher price. Our production schedule insures delivery when wanted for the immediate present.

Send for Illustrated Booklet with Complete Specifications.

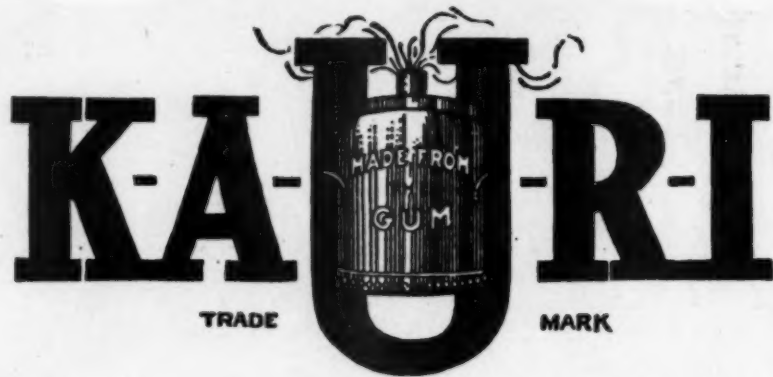
INTERNATIONAL
 SHIPBUILDING AND MARINE ENGINEERING
 CORPORATION
NYACK, NEW YORK, U.S.A.

Price of the Complete Cruiser \$3500, f.o.b. or in the water, Nyack, N. Y.

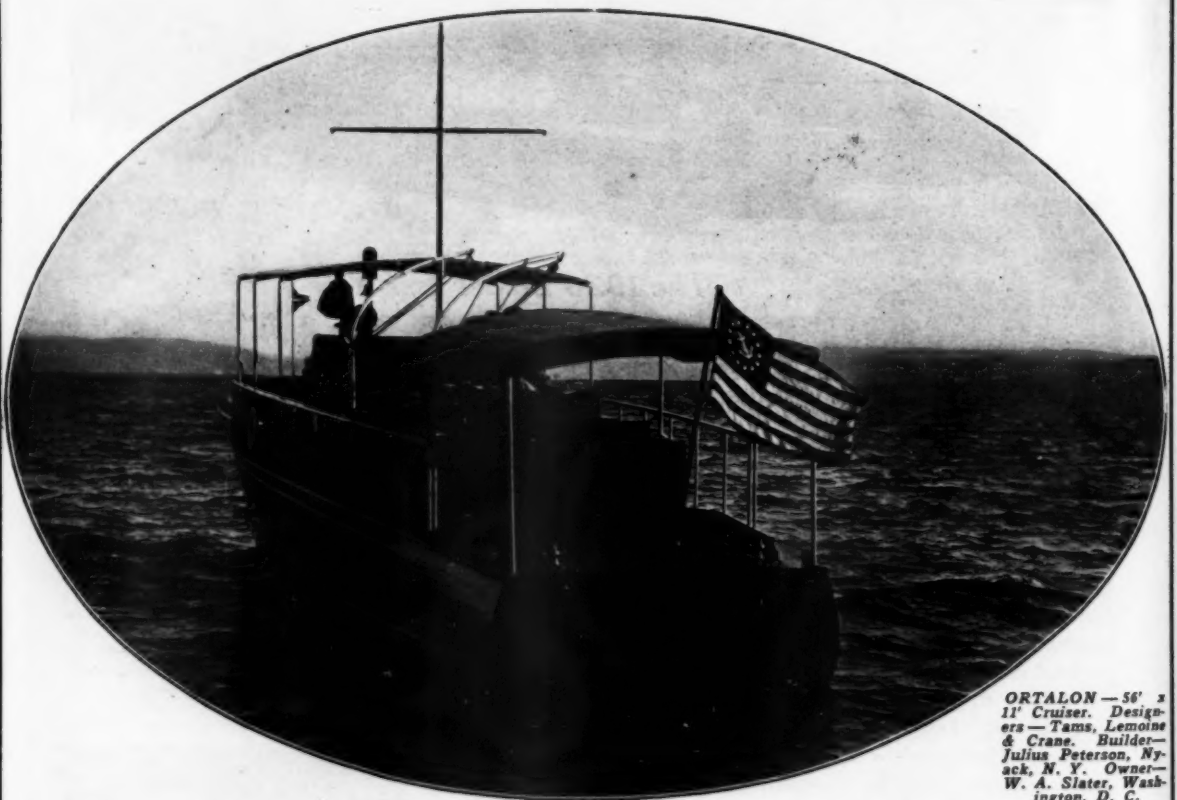
After end of the Raised Deck Cabin, white enamel finish with mahogany trim and blue upholstery. Berths for four; lots of lockers. The low partition adds to roominess; light and air from a big skylight and man-sized ports. Galley has two-burner and oven oil range, big icebox filling from deck, etc. Note the convenient window between galley and cockpit.



When writing to advertisers please mention MoToR BoATiNg, the National Magazine of Motor Boating



(Pronounced Cowrie)



ORTALON — 56' x 11' Cruiser. Designers — Tams, Lemoine & Crane. Builder — Julius Peterson, Nyack, N. Y. Owner — W. A. Slater, Washington, D. C.

WATERPROOF SPAR VARNISH

Never a trace of white can mar the shining blackness of Ortalon's hull, for Ortalon is finished throughout, inside and out, with K-A-U-R-I Waterproof Spar Varnish, the varnish that is absolutely guaranteed not to scratch white, turn white in salt or fresh water, crack or bloom.

Use K-A-U-R-I on your boat this season. Sold Everywhere

Manufactured by

BROOKLYN VARNISH MFG. COMPANY, Brooklyn, N. Y.

GIBBS QUALITY

WAS GOOD ENOUGH FOR

UNCLE SAM



The Navy Department and Emergency Fleet Corporation selected Gibbs to build boats that were required to stand the hardest tests. There never was an element of doubt in the placing of these orders. Satisfaction was assured because—they knew "Gibbs Quality."

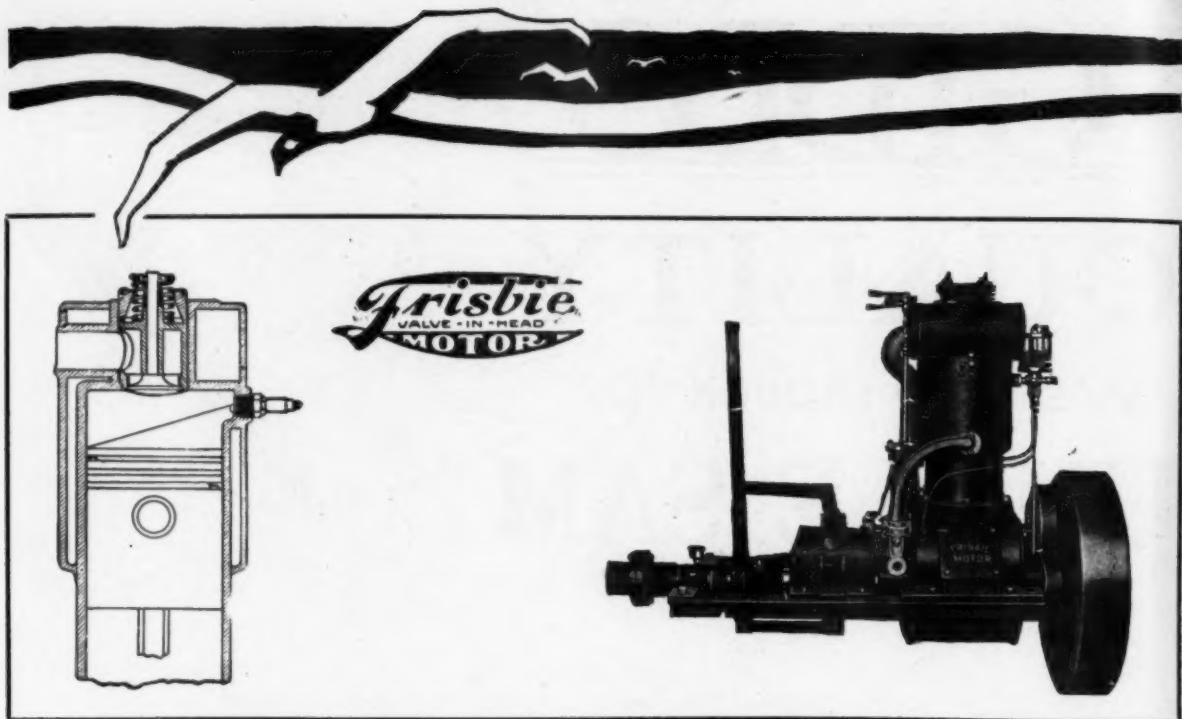
Hundreds of owners of yachts, houseboats and workboats first see others and then have Gibbs build their boats. We have shown them "Gibbs Quality." Let us show you.

Before building your next boat, investigate the reasons for our low building costs, absence of delays, highest grades of boat lumber and material, and unexcelled workmanship. At your service for
"QUALITY and EFFICIENCY"

GIBBS GAS ENGINE COMPANY

JACKSONVILLE, FLORIDA

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This Type of Construction Made Valve-in-Head Enthusiasts

THE diagram above represents a cross section of a Frisbie cylinder. It shows the type of construction that has been the basis of Frisbie popularity for more than fifteen years. All the valves are in the cylinder head, easily accessible for cleaning or grinding. The spark fires directly into the combustion chamber instead of into a side pocket. This causes a more active explosion, which is concentrated upon the piston head by the compact cylinder construction, thus creating the greatest possible power for the fuel used.

Frisbie Valve-in-Head Motors are made in five sizes—1, 2, 3, 4 and 6 cylinders, 5 to 75 H. P.

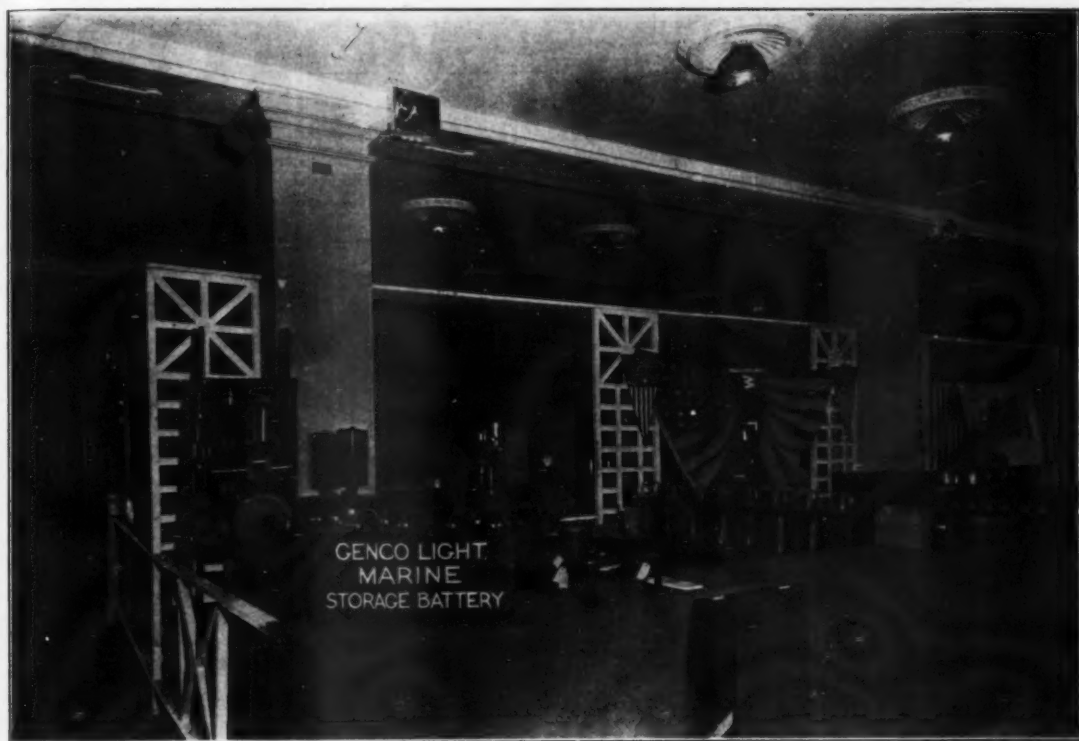
Send for the Frisbie Catalog

FRISBIE MOTOR COMPANY

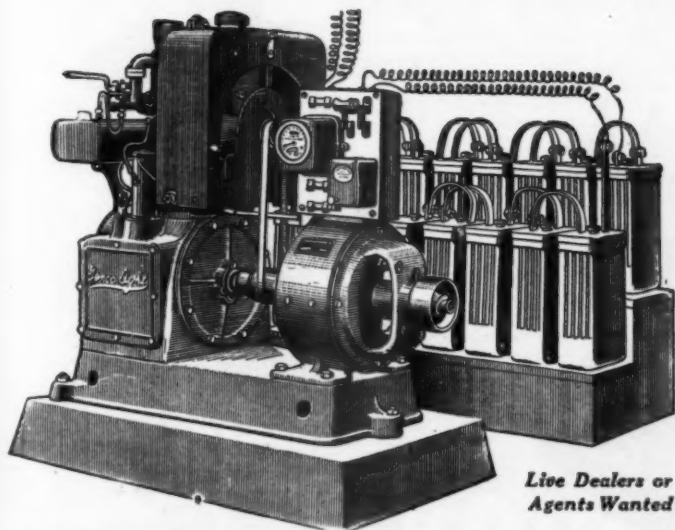
7 College St., Middletown, Conn.



Frisbie an' I



The Genco-Light Marine Lighting Plant



Built in 32 and 110 volt sizes up to 6 K-W, complete with batteries

*Live Dealers or
Agents Wanted*

is as necessary to the up-to-the-minute craft as the propelling power. Genco-Light Marine Lighting Plants are built especially for boat use. They are used in yachts, work boats, small steamers, tug boat deck installations, radio or wireless. Stevedores on hoisters and barges, etc., also for sea-shore and summer homes, lumber and logging camps, isolated stations or wherever electric light and power are required.

Write today for Catalog

GENERAL GAS-ELECTRIC CO.
MANUFACTURERS

C. W. Dean - - - Marine Distributor
P. O. Box 863 - Office 417 William Street, Norfolk, Va.

HANOVER, PA.

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DUNN

FOUR CYCLE MARINE MOTORS

1920 Models—Kerosene or Gasoline Fuel

Single Cylinder
2 H. P.

\$42.50



Bore— $3\frac{3}{4}$ "
Stroke—4"

Our Prices Speak for Themselves

If you want a reliable economical motor at the lowest possible cost you should own a Dunn Motor. Compare the prices of Dunn Motors quoted on this page with the prices of any other motors in the market. Then write us for full information about the design features of Dunn Motors and how they are built.

Remember all Dunn models are four cycle type, of up-to-date design. Special attention has been given to easy starting and accessibility for easy repair and replacement.

What A Dunn User Writes

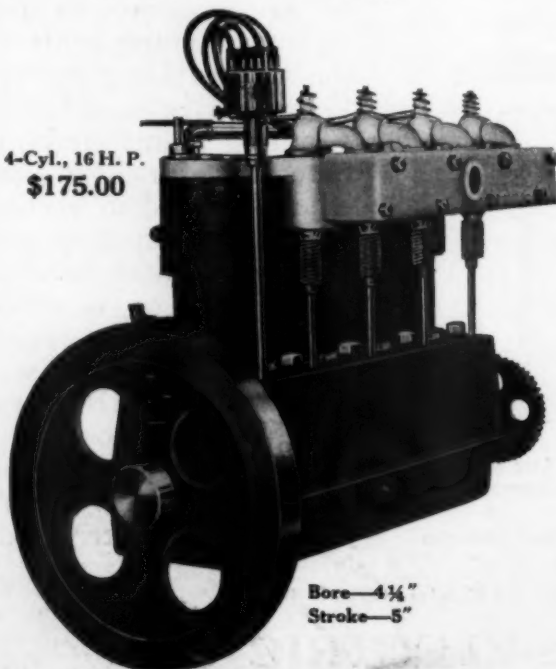
"This is to certify that about 10 months ago, I purchased one 12 H.P. Dunn Motor which I had installed in my cabin cruiser, $33\frac{1}{2}$ ft. long by 9 ft. beam, full model boat, and I use this boat in outing trips and have made as high as 200 miles without a stop. It works beautifully, and my little boy, 13 years old, can and does start motor without any trouble. This motor runs smooth and easy, in fact, is as smooth running as any automobile I have ever used. I consider it the best marine engine made." (Signed) Dr. G. H. Howard.

At the prices given, each motor is furnished complete with suitable propeller, shaft, couplings, coil, spark-plugs, mixing-valve and oil-cups.

Customers abroad—Add 10% to prices given to cover cost of boxing thoroughly for export and delivering F. O. B. Steamer New York City.

Write today for our new 1920 catalog

4-Cyl., 16 H. P.
\$175.00



Bore— $4\frac{1}{4}$ "
Stroke—5"

6 H. P. 12 H. P.
\$100.00 \$150.00

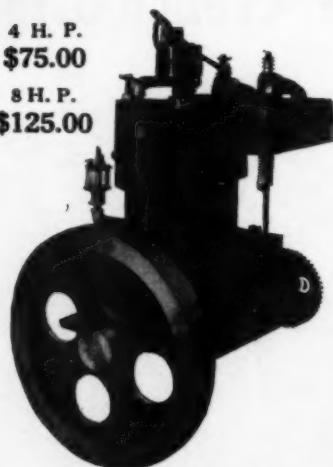


3 Cyl. 6 H. P. and
3 Cyl. 12 H. P.

6 H. P. 12 H. P.
Bore— $3\frac{3}{4}$ " Bore— $4\frac{1}{4}$ "
Stroke—4" Stroke—5"

4 H. P.
\$75.00

8 H. P.
\$125.00



2 Cyl. 4 H. P. and
2 Cyl. 8 H. P.
4 H. P. Bore— $3\frac{3}{4}$ "—Stroke 4"
8 H. P. Bore— $4\frac{1}{4}$ "—Stroke 5"



Dunn Powered Launch

DUNN MOTOR WORKS, Ogdensburg, New York, U. S. A.

JEFFERY'S

PATENT

WATERPROOF

MARINE GLUE

Is your boat watertight?

If not a timely application of Jeffery's Marine Glue will remedy these defects, and insure a worry-proof season insofar as these details are concerned.

It is not sufficient to use mere glue. You must use the best—**Jeffery's Waterproof Glue**—the choice of knowing boatmen the world over.

If your dealer handles standard products, he handles Jeffery's. If he hasn't it in stock he will get it for you. No other is just as good. Wait for Jeffery's, if necessary.

Use as follows

For Deck and Hull Seams of Yachts and Motor Boats

USE—No. 1, Extra Quality

Black, white, yellow or mahogany color. Give black the preference; it is more elastic and satisfactory in every way.

Specified by all first-class designers, and used exclusively by all the prominent builders.

Use No. 7, Soft Quality Black, White or Yellow.

For waterproofing canvas for covering Decks, Tops of Cabins, Steel or Wood Boats, Canoes and Seaplanes. It not only waterproofs and preserves the canvas but attaches it to the wood and with a coat of paint once a year will last as long as the boat.

Waterproof Liquid Glue is used for the same purposes as No. 7, Soft Quality.

It is ready for use and requires no heating; simply open the can and paint it on, like ready-mixed paint.

This glue will also attach canvas, cork, felt, rubber, leather and linoleum to iron, steel or wood. All the prominent builders of seaplanes used this glue in combination with cotton cloth between the veneer in diagonal planking. It is also used for covering hulls with canvas.

Special Marine Canoe Glue. Best Filler for Canvas, Black, White and Yellow.

Our 35c emergency cans made a big hit. Every canoeist should carry one; it is as valuable to him as a repair kit to a bicyclist or an automobilist.

Sent by mail on receipt of 40 cents in stamps. Canada 47c.

For Ships' Decks Use

No. 2, First Quality Ship Glue

No. 3, Special Navy Glue

All put up in 1, 2, 3 and 5-lb. cans; also 14, 28, 56, 112-lb. boxes, either tin or wood.

Every owner of a boat, whether motor, sail or row boat, either wood or steel, should send for our new booklets just out—"Marine Glue, What to Use and How to Use It," and "How to Make Your Boat Leakproof." These booklets are up to date in every particular and answer practically all questions that may arise regarding the application of Marine Glue that thirty-five years' experience suggests. Write us today for them.

Put your problems up to us. We esteem it a privilege to have you do so. Our extensive experience is at your disposal.

L. W. FERDINAND & CO
152 KNEELAND ST.,
BOSTON, MASS.



Upon the Seas Where Pirates Once Held Revel

Among South Sea Islands, once favorite haunts of Capt. Kidd and his kind, now skim rowboats, canoes and other light craft, powered by the famous Evinrude Motor. More than 100,000 Evinrudes are in use in all parts of the world. It has been adopted by 25 governments.

The Evinrude lets you rest while you ride. No rowing. Just a turn of the flywheel and you're off. Built-in-flywheel type magneto makes easy starting and smooth going. Special method of balancing practically eliminates vibration. The automatic reverse is another much appreciated feature.

Ask your hardware or sporting goods dealer. Or write for catalog.

EVINRUDE MOTOR COMPANY
254 EVINRUDE BLDG., MILWAUKEE, WIS.

DISTRIBUTORS:

69 Cortlandt St., New York, N. Y.
214 State Street, Boston, Mass.
440 Market Street, San Francisco, Cal.
211 Morrison St., Portland, Ore.
10 & 12 No. Howard St., Baltimore, Md.



EVINRUDE

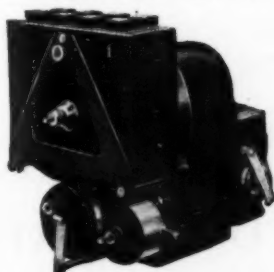
DETACHABLE MOTOR FOR WATERCRAFT



HOOSIER V, H. R. Duckwall's marvelous cruiser, had won all the Florida races up to Feb. 28, when she had the ill-luck to hit a submerged rock. The Miami-Bimini cruise was a walkover—110 miles in 3 hours, 55 minutes and 55 seconds, at 1400 revolutions. Her Sterling motors were able to turn 1600 revolutions if necessary. In the 140 mile event at Palm Beach, the ocean was so rough that half the contestants quit, but this gallant craft made the route in 5 hours, 8 minutes. She is hailed as the world's undoubted champion cruiser and can do 33 1/3 miles per hour.

Hoosier V is wonderful in her lines, wonderful in the performance of her twin G. R. Sterling motors, wonderful through the steady, dependable work of her Berling Magnets.

Time after time have the speed boat classics been won by Berling-equipped craft, but this cruiser event is a crowning proof of absolute dependability.



Berling Magneto is standard equipment on leading marine engines, just as it is standard on the better automobiles, trucks, tractors, motorcycles, aeroplanes and power plant engines.

ERICSSON MFG. CO., BUFFALO, N. Y.

Berling Magneto

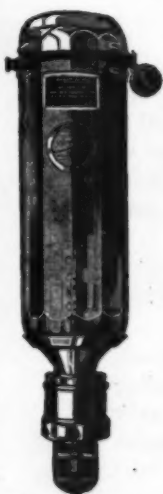
WORTH MORE DOES MORE

The New BOYCE FIRE EXTINGUISHER

A Combined
Automatic and
Hand-Operated
Fire-Fighting
Instrument



A New and
Automatic
Method of
Preventing
Fires



Front view—
The Boyce will
harmonize with
the furnishings
of the finest
yacht

THE "BOYCE" is an automatic chemical sprinkler system. Once installed in the motor compartment (where 95% of motor boat fires originate), a fire can never become serious. By creating the heat that sets the "Boyce" in operation, a blaze destroys itself. A fire is no sooner started than the automatic fuse melts off, and a fan-shaped torrent of chemical is sprayed over the entire motor.

In fifteen seconds the fire is out.

In case of fire in any other part of the boat the "Boyce" can be easily slipped from its bracket and operated by hand.

It is the only combined automatic sprinkler system and hand-operated extinguisher on the market.

BOYCE-VEEDER CORPORATION
Long Island City New York



Side view—The
strong metal
bracket makes
the Boyce in-
stantly accessi-
ble for hand
operation



Attractively
Boxed for
Selling

Dealers: Motor Boat owners will demand the "Boyce". There is no second choice. Machinery has been installed in a large modern daylight factory for an output of 5,000 per day. But even this will not meet the demand.

Please send me full information regarding the Boyce Automatic Fire Extinguisher. I am a { dealer owner

Name

Address

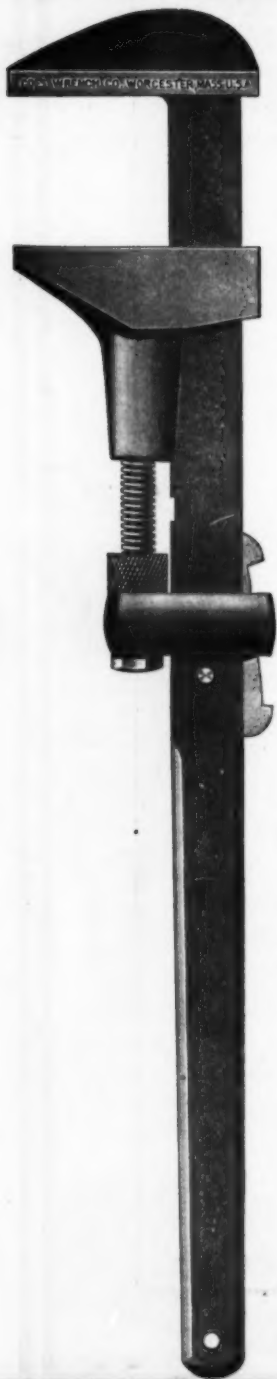
City State

Crockett's Spar Composition
is the
only
varnish
which
will last
a season
on a
deck

THE DAVID B. CROCKETT CO.
Bridgeport, Conn.

The Bissell Varnish Co., *Successor*

TRADE MARK **"COES" W** REG. U.S. PAT. OFF.



"Reduction of Armament"

WHY carry a boatload of expensive forged solid wrenches? Special forged wrenches are fine, as long as they fit. After that, round corners appear, and the finished appearance of an expensive engine is marred just that much.

But these troubles can be ended. The KEY-MODEL wrench will replace many times its weight of solid wrenches, and many times its cost, too. Add to this the fact that it will **ALWAYS FIT**, no matter whether the nut is new or old or oversize or a trifle small.

You won't have to file it out a hair, or hammer the jaws together. **IT WILL ALWAYS FIT.**

It is built for service under the toughest conditions. It has met those conditions in the railroad and marine field ever since its introduction. It is built by the oldest wrench makers in the country, and is backed by the broadest guarantee in the trade.

The range of models is from 28" to 72". The smallest model opens from zero to 5 $\frac{1}{8}$ " and weighs 19 pounds.

We know you are interested in saving money and time. Let us tell you the rest of the story.



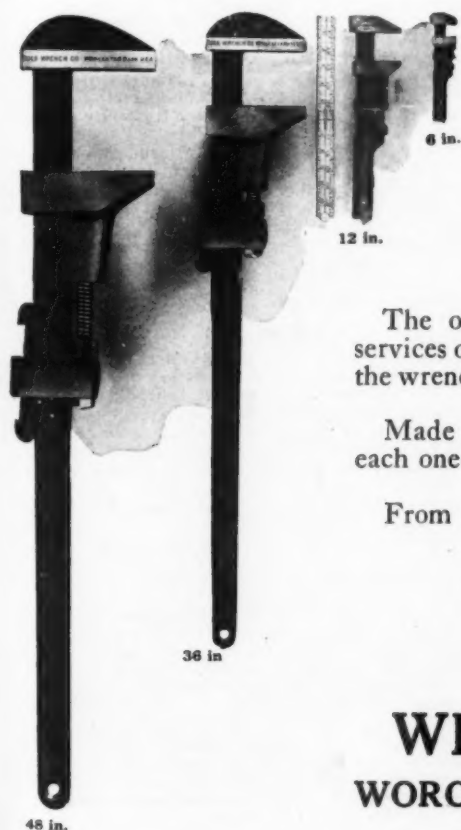
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WHEN a man spends a dollar in these days he expects a definite return. No longer can he say, "Put in some tools" and forget it.

The COES STEEL HANDLE WRENCH stands out today as it always has as the leader, from every standpoint, strength, service and value.

It is designed to meet the demands of the hardest service. A COES wrench has no repair bill with it.



In the steel handle wrench there are five separate parts. Each is a solid piece. They are each designed to do their part of the work. Each part is heat-treated and hardened to insure strength and long wearing qualities.

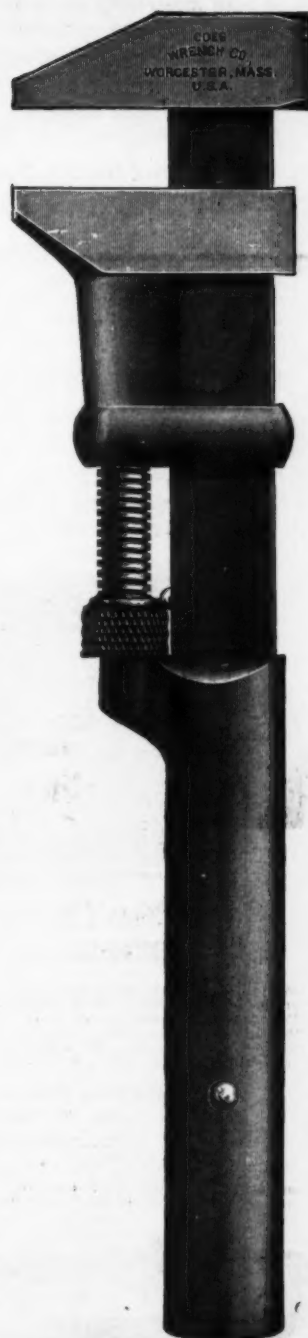
The only way you can lose the services of a COES wrench is to lose the wrench.

Made in seven sizes, 6" to 21", each one a giant, and a leader.

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Let him tell you and the men who sell your goods how to approach and judge men—how to increase their man power. He is appearing before the largest sales organizations in this country. His Stereopticon Lecture is both interesting and educating in the modern principles of salesmanship, and best of all, his methods are practical.

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You may send me "The Science of Approach." Enclosed find \$2. If I return book to you in five days you are to return the \$2.
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Wisconsin Motors leave our shops ready to run—all adjustments made, bearings run-in, pistons perfectly fitted, and so on. For speed, commercial work, or cruising, Wisconsin engines are the choice of experienced power boat builders and owners. Slightly higher priced, but cost less in the end because of the consistent service. Write for specifications.

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Advertising Index will be found on page 148

The Annual Meeting of the United States Power Squadrons

By A. B. Bennett, Chief Commander U. S. P. S.

IT was a great meeting. Not great in attendance for there have been more Squadrons represented by more delegates at former meetings but this one was great in the spirit of the old guard who were there as at most of the other meetings, enthusiastic Squadron members, and ready to work and think for the betterment of the Squadron Movement and anxious that it should reach out to all motor boatmen and do for them in adding to the pleasure of the sport what it has done for the men in the United States Power Squadrons.

Gathered together as we were, thinking only of what would be for the best for the future of the United States Power Squadrons it was realized that the Military features of the organization would be better left out and the educational part carried on. One of the first moves was the adoption of the amendment to the By-Laws which made the membership a membership in the United States Power Squadrons instead of in the Local Squadrons. The dues to the National Body were then placed at One Dollar a year. Attention was then called to the possibility that many members had been lost, by the withdrawal or disbanding of Local Squadrons who were really interested in the organization and its ideals and who would if they could have done so, remained in the Squadron.

The conception of the United States Power Squadrons of the future as we saw it was so different from the United States Power Squadrons as it was launched years ago that we realized that it meant a making over of the By-Laws both in detail and as to fundamental principles and organization. It was therefore voted to appoint a Revision Committee to revise or rewrite the By-Laws with the following important points in mind.

Reinstatement of all former certificate holders.

Membership shall be in the United States Power Squadrons.

Membership in Local Squadrons shall be optional.

Dues One Dollar a year to the United States Power Squadrons.

Nothing compulsory except dues and observance of the law. Educational standards and grades shall continue as now accepted.

Active Local Boards of Examination to be created to carry on the work of classes and instruction for the benefit of candidates and members. These being especially needed where there are no Local Squadrons.

The purposes are essentially the same as before being to raise the standard of skill in the handling of boats by amateur motor boatmen, making boating safer for all and to create an inter club and intercity fraternity of lovers of the motor boat game.

Members will receive the Certificate of membership and will be entitled to fly the United States Power Squadrons' Ensign which is a patented flag recognized by the merchant marine as meaning knowledge of signals and piloting.

The United States Power Squadrons has earned the respect and support of the Department of Commerce and the Navy Department and we are assured of their help whenever we wish it which will mean much to us as we develop into all around skippers.

In order that we shall become a great National Organization for the good of our chosen sport every effort will be made to reach former members as well as carry on the work of preparing new men for the entrance examination. It would however be well for every certificate holder whose membership may be in doubt for any reason to get in touch with one of the United States Power Squadrons' officers preferably the Chief Commander or the Secretary and make sure that he will not be overlooked in this opportunity.

It is the intention of the National Officers to make membership in the United States Power Squadrons an asset to any man and ways and means to do this are now being prepared.

Motor Boat Movies

WHEN Jack Robinson, publicity representative of the Hall-Scott Motor Car Co., Inc., was in Los Angeles, Cal., recently, Dustin Farnum, the famous movie star and proud owner of the Hall-Scott powered "Miss Los Angeles", winner of the Nordlinger Trophy, gave him 450 feet of moving picture film showing incidents in the Nordlinger Trophy race which was run at Los Angeles last October. These pictures were taken by Mr. Farnum's photographer, and have never been shown in public. Mr. Robinson assures us that the pictures are exceptionally interesting and bound to stir up the blood of all real Motor Boat "Bugs". The Hall-Scott Company will be very glad to loan this film free of charge to any motor boat Club that may be running a smoker or a concert or meeting of any sort. Just write Mr. Robinson, care of Hall-Scott Motor Car Co., Inc., 39 Associated Service Building, Buffalo, N. Y.

DURABLE, WATERPROOF AND ECONOMICAL

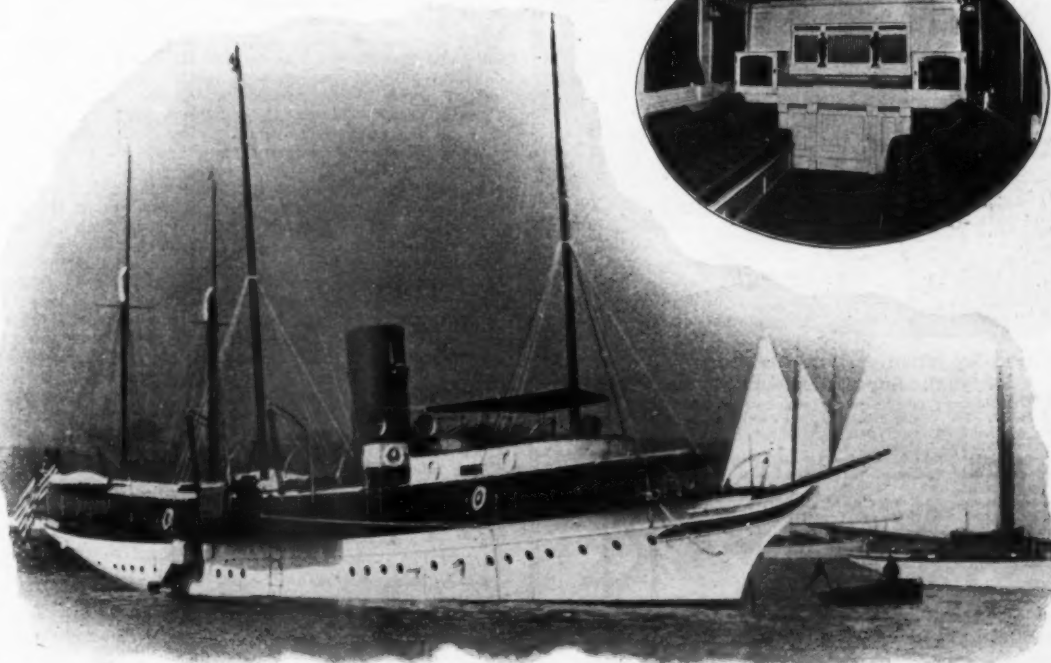
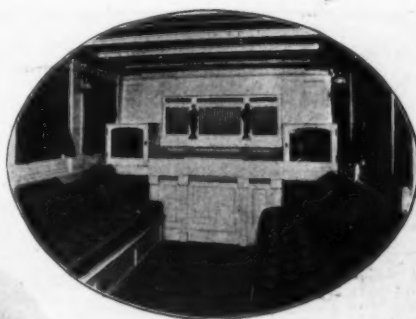
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Chase Leatherwove, the result of years of scientific research and experiment, was produced to fill this want. And in Chase Leatherwove will be found an economical, wear-resisting, and waterproof material best suited to withstand changing climatic conditions.


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"Good-by Strong Arm Methods" Says the Superintendent

THE old way required a gang taken away from other work. The Yale Spur-gear Chain Block, and one man, now do the hoisting Quicker, Safer, and with Economy.

Yale Chain Blocks help solve production problems, eliminating slow, dangerous "strong arm" methods that decrease output.

Executives responsible for plant production, economy and safety will find constructive information in the new Yale Chain Block Catalog. Send for it.

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For a Factory Lifting Equipment

Use a Yale Master-Key System

The Yale & Towne Mfg. Co.

Makers of the Yale Locks

Stamford

Connecticut



Dorothy—A Hand 25-Footer

(Continued from page 36)

shown and a pair of brass bitt heads on aft deck.

Flagstaff Sockets: A pair of polished brass beveled bow chocks to be fitted on forward deck where indicated. A pair of flush type polished brass flagstaff sockets to be fitted where indicated.

In General: All details of metal work and hardware to be complete and all parts of polished brass. All fastenings not otherwise specified to be brass screws and all inside joiner work to be fastened with oval head brass screws.

Motor and Installation: There will be a Model M four-cylinder Van Blerck motor supplied with gasoline pump and electric starter, installed as indicated. All water piping will be of brass and all gasoline will be led through 3/8-inch O. D. soft copper tubing. The exhaust will be piped to indicate flange coupling with 3/2-inch galvanized pipe fittings. From flange coupling to transom, through a slip joint, the exhaust will be led through 3/2-inch O. D. No. 16 gauge copper tubing. All controls will be properly led to the steering wheel in auto-soft copper tubing. The exhaust will be piped to indicated flange the satisfaction of the owner.

Painting

The interior of hull below chine will be painted with two coats of red lead and oil and above chine with two coats of tan deck paint. The mahogany work will be finished in one coat of wood filler and three coats of the best spar varnish. The hull exterior will be painted as follows: The bottom, below indicated painted waterline, will have one coat of red lead and two coats of the best bronze bottom paint. The top sides will have four coats of the best yacht white. The decks will have three coats of light tan color deck paint. The ventilators will be painted light red inside and to match the deck outside. The name will be neatly painted on stern in gold leaf letters about 3 inches high. All painting and varnishing details to be complete and as required by owner.

Many New World's Records Established

(Continued from page 12)

which were on the high seas, and not once through it all did the two G R Sterling motors in Hoosier V or the Speedways in Shadow V and Altonia show signs of weakness or fail to run at 100 per cent full load 100 per cent of the time. It is the greatest victory ever for these power plants. The day has arrived which we have been so long anticipating, when one can be sure of an absolutely reliable power plant for the fastest and most seaworthy type of cruiser for which he could possibly wish.

In the first series Shadow V owned by Carl G. Fisher took first place and the championship. Shadow V was far from being the fastest boat, in fact she actually was the slowest; but even though she was dubbed an "alsoran," yet by being a constant plugger Shadow was able to collect the greatest number of points in the five races. At the end of the last day's races it was found that Shadow had forty-four points, which was one better than Hoosier's forty-three. Altonia came along third with thirty-two points and Gar, Jr., finished last with only twenty-three.

It will be seen by observing the closeness of the score that it was anybody's race up to the finishing gun of the last event. Excitement ran high among the owners and crews. Had Altonia run true to form on the two short races the result would have been different and the championship would have gone to Hoosier V instead of to Shadow V. But the crew of Altonia were nervous and became rattled. In the fourth race they ran down a small boat and hit a barge that was anchored too near the course. The course is narrow at the first turn, and as all the boats approached this point at the same moment at the start and as Altonia was on the outside she became slightly unmanageable on account of the waves thrown by the other boats and had no other alternative than to hit the barge. This naturally put her out of the race. However, the crew of Altonia made strenuous plans to come back strong in the fifth and deciding race of the match. They worked hard and late on their

(Continued on page 142)

Springtime Pleasures

(Continued from page 9)

ready to be used again the brush should be cleaned in turpentine and thoroughly shaken or beaten dry or as nearly dry as possible.

Another vital factor affecting the quality of the work is the temperature. Never apply any varnish when the temperature is below 50° F. A much better temperature is 70° F. At this time the varnish will flow nicely and cover well. A humid, damp day should be used for anything else but varnishing. The ideal conditions are clear, warm, dry days with a high barometer. Then the varnish will dry quickly and yield the best results.

Gray Marine Motors for 1920

PRODUCTION Increased

Overhead Valves

This is the day of overhead valve motors. All the aeroplane motors—also the Reo, Marmon, Chevrolet, Buick, Nash and a host of others have adopted the overhead valve—it is more efficient, more powerful and more accessible.

Back-firing

This motor cannot backfire and set fire to your boat.

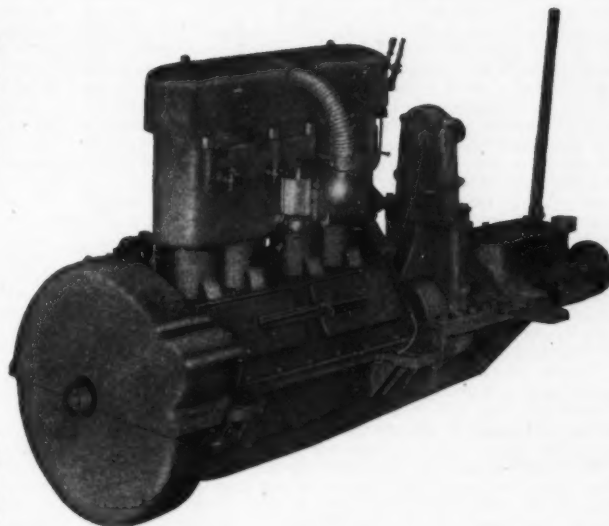
Kerosene or Gasoline

All gasoline now is poor stuff, the motor designed five or six years ago uses it, but not satisfactorily. It takes a different design of intake to properly use this low grade fuel. Our HOT SPOT cylinder head uses not only gasoline of the poorer grades, but even kerosene and gives absolute control, flexibility and a clean motor.

Gray 2 Cycle—3 to 8 HP.

Standard the world over.

Reliable—Economical.



This model "VM" Gray 4 cycle motor marks an epoch in Marine Motor history. In this motor is embodied the results of the most modern gasoline motor practice and backed by an old established motor building organization and its experience.

Slow Speed 500 to 600 Rev.—10 to 12 HP.	Medium Speed 700 to 900 Rev.—15 to 20 HP.	High Speed 1000 to 1200 Rev.—20 to 26 HP.
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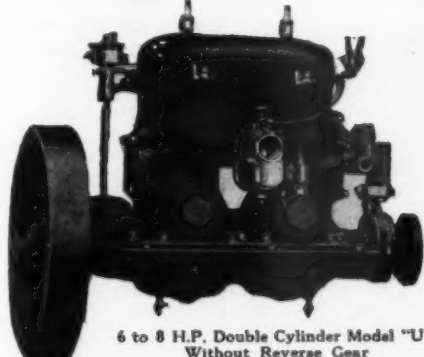
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Gray 4^{Cycle} Cylinder Motors

In three sizes 10 to 50 HP.

all valve-in-head

write today for 1920 literature



6 to 8 H.P. Double Cylinder Model "U"
Without Reverse Gear

Gray Motor Company

Detroit, Mich.

2106 Mack Avenue

Many New World's Records Established

(Continued from page 140)

Speedway motors that night and had their power plant in what they believed to be perfect form for the next day's grind.

The start came. This time Altonia had the pole and got away in fine style at full speed. But hardly had she gone 100 yards when those in the judges' stand noticed she was having trouble. Slower and slower she went, the whole field passed her, then lapped her, and then Altonia gave up. What had happened was just this—a piece of flannel rag had worked into the magneto shaft, upsetting the timing of one of the motors.

Because the slowest boat of the four had won the series of races there was a great deal of discussion among the owners over the relative virtues of the craft. Only the owner of Shadow V would agree that he had the best boat and that on account of her reliability he was entitled to win. The others all argued hard luck and wouldn't admit defeat. Gar Wood, owner of Gar, Jr., was satisfied—that is, he didn't complain—but it was plain to be seen that he felt that because he had won the twenty-mile bay race at the best speed of all the series that he should not be counted out of the championship just because he had engine trouble in the ocean race to Binimi, had struck a reef in the race to Key West, that it was too rough to venture out in the open sea with Gar, Jr., on the day of the race to Palm Beach, and that a piston had collapsed in the bay race.

Hoosier V had trusted the laying out of the course in the race to Key West to a professional. He took Hoosier right over a spot which is marked by little crosses on the chart. He didn't know that that was the way the government says "rock awash," but he does now. Hoosier lost her rudder, bent her propellers and shafts and was towed home. Only hard luck, said H. R. Duckwall, good sport as he is, but Hoosier V is really champion.

A. C. Newby, owner of Altonia, also was a much disappointed man. His crew hadn't followed his instructions in the race to Palm Beach—if he had been aboard he never would have permitted them to withdraw on account of rough water. The bay races were not fair, Mr. Newby claimed. The committee erred in having that barge in the course, and the flannel rag found in the magneto—well, it wasn't there the night before the race.

So the result of all this discussion on the Monday following was just this—the writer was called in and Carl Fisher, owner of Shadow V, said we'll leave it up to the editor of MoToR BOATING and secretary of the Racing Commission of the American Power-Boat Association—anything he decides we will agree to. And thus it was suggested that the whole series be run over again under the same conditions except that the races take place on every other day instead of one a week, and Fisher, big man as he is, said fine, I'm with you.

The result of the second series gives the championship to Hoosier V, Altonia took second, Shadow V third, and Gar, Jr., failed to start in any of the events of the second series.

Hoosier V, the winner, is a most wonderful boat and a word would not be amiss here about her. Her design is the result of the brains of Fred. Lawley and the hull was built by Geo. W. Lawley & Son Corp., of Boston. The workmanship on the hull is perfection. She is approximately 43 feet in length by about 10 feet beam. Her underbody is a slightly modified V

with the V carried much further aft than is generally the practice. Hoosier V is a big boat in every sense of the word and not a freak or a racing machine. She is exactly the type of boat needed for express cruiser service. She will fill a long-felt want among those who have wished for a boat combining the qualities of speed, seaworthiness, comfort and roominess. None of the disadvantages which are generally thought of in connection with an express cruiser are present in Hoosier V.

Hoosier's power plant consists of a pair of six-cylinder type G R Sterling motors of about 200 h.p. each. These motors are admirably suited to the outfit. Although they are new in design, yet the manufacturers have turned out a type of engine in them which is bound to be a great success for speed-reliability service. In over 900 miles of racing the motors have given no trouble whatsoever and the good impression which they made upon southern yachtsmen was nothing but good. Many motor boatmen who have owned motors of varied makes and sizes were heard to remark and marvel at the performance of these new type Sterling motors in Hoosier V.

The races for runabouts was limited to two races on the bay, of twenty and ten miles respectively. There were four entries, including N'Everthin, the Hacker-built Hall-Scott powered runabout owned by William Kemp, of Detroit; We We, a boat also built by Hacker, powered with a Hall-Scott marine motor and owned by Webb Jay, of Chicago; Mauser II, the big 45-foot champion of the Great Lakes, powered with a twelve-cylinder motor and owned by Senator Harding, of Chicago, and Miss Nassau, formerly The Nurse, powered with a twelve-cylinder Liberty motor and owned by C. B. Johnston, of Cleveland.

Without doubt Miss Nassau is the fastest runabout afloat, although she did not win the southern championship due to hitting something just before the start of the first race. In the mile trials she ran at the rate of 44.3 miles an hour. She makes very little fuss when running at this speed and is about the sweetest, smoothest thing to either look at or ride in.

N'Everthin won the first runabout race of twenty miles at a speed of 35.1 miles per hour; We We, her sistership, came in a few seconds behind, showing a speed of 34.2 miles per hour. Miss Nassau, due to being ten minutes and forty-one seconds late at the start, finished fourth, being about three minutes astern of Mauser II, which had all kinds of spark plug trouble and required thirty-seven minutes fourteen seconds to make the twenty miles.

In the second day's race for runabouts the length of the event was ten miles. Miss Nassau had everything her own way, making the ten miles in fifteen minutes forty-five seconds, which is at the rate of 38.1 miles per hour. We We finished second, but had spark plug trouble which greatly interfered with her usual speedy and smooth going. N'Everthin jammed her steering gear right after the start, and had to jog around the course steering by means of a paddle. Mauser II didn't get started at all, as she took fire at the start and before the Department of Commerce boys who were patrolling the course could get alongside with their Pyrenes the fire had caused considerable damage and made a start impossible. However, the Pyrene saved her.

A complete summary of all the races will be found below.

SUMMARY OF RACES FOR SPEED AND EXPRESS CRUISERS AT MIAMI, 1920

Boat	Owner	Make of Motor	Feb. 14 Miami to Binimi and Return 113 Miles	Feb. 21 Miami to Palm Beach and Return 138 Miles	Feb. 28 Miami to Key West 156 Miles	March 5 Biscayne Bay 10 Miles	March 6 Biscayne Bay 20 Miles	March 6 2-Mile Time Trial	March 6 1-Mile Time Trial	March 10 Miami to Binimi and Return 113 Miles	March 12 Miami to Palm Beach and Return 138 Miles	March 15 Miami to Key West 156 miles	March 17 Biscayne Bay 10 Miles	March 18 Biscayne Bay 20 Miles
Hoosier V	H. R. Duckwall	2 Sterlings	3-55-29	5-08-32	D N F	19-08	38-07	D N S	1-44.9	4-42-33	6-42-40	5-16-51	19-55	36-01
Shadow V	C. G. Fisher	2 Speedways	4-9-25	6-16-35	6-0-0	22-19	54-00	D N S	D N S	4-51-8	5-0-30	5-47-55	31-20	44-13
Altonia	A. C. Newby	2 Speedways	3-59-50	D N F	8-47-0	D N F	D N F	D N S	D N S	4-45-15	4-56-0	5-34-33	21-06	42-14
Gar, Jr.	G. A. Wood	1 Liberty	Not timed	D N F	D N F	21-45	37-35	3-29	1-38.4	D N S	D N S	D N S	D N S	D N S

SUMMARY OF RACES FOR DISPLACEMENT BOATS, MIAMI, MARCH 5-6, 1920

Boat	Owner	Make of Motor	Elapsed Time		Speeds		Total Points
			10-Mile Race	20-Mile Race	10-Mile Race	20-Mile Race	
N' Everthin	Wm. Kemp	Hall-Scott	Called in	34-14		35.1	10
We We	Webb Jay	Hall-Scott	22-41	35-05	26.4	34.2	9
Miss Nassau	C. B. Johnston	Liberty	15-45	40-11	38.1	29.8	6
Mauser II	G. Harding	Van Blerck	D N S	37-14		32.2	4

LAWLEY-BUILT HOOSIER V

The Fastest Express Cruiser in the World

Winner of the American Power Boat Association Express Cruiser Championship, Miami, Fla., March 1920. Holder of the following World's Records for express cruisers:

- One mile (Admiralty conditions), Speed 34.32 miles per hour
- Miami to Bimini and return, 118 miles, Speed 28.7 miles per hour
- Miami to Palm Beach and return, 150 miles, Speed 22 miles per hour
- *Miami to Key West, 160 miles, Speed 30.2 miles per hour

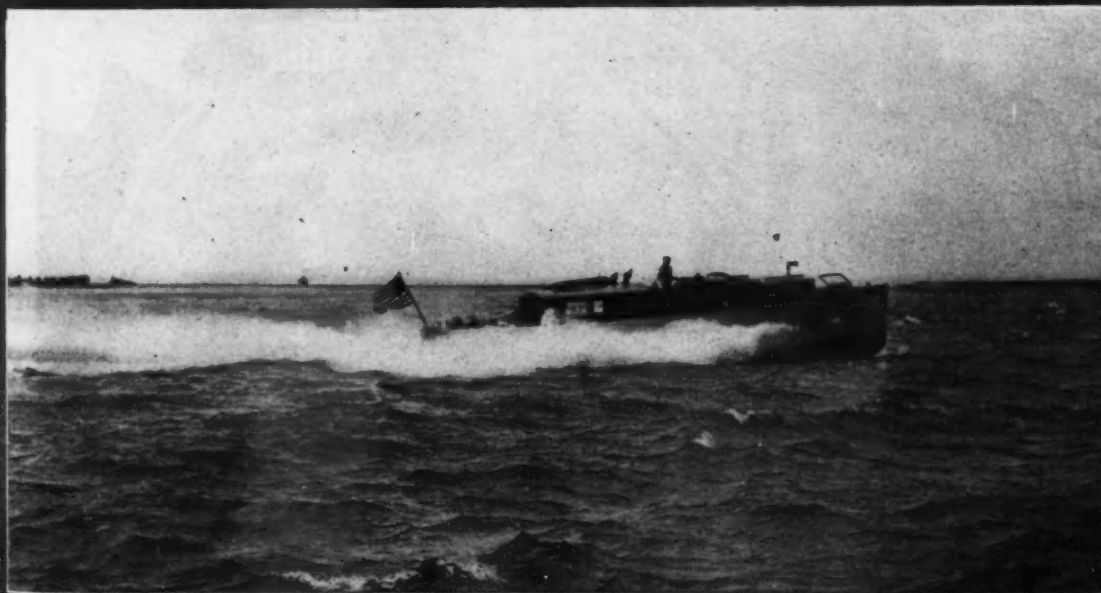
* World's long distance record on ocean for any distance

Hoosier V is not a racing machine or freak in any sense. She is a serviceable type of V-bottom cruiser, 42 feet in length by 9 feet beam. Her displacement is more than 15,000 pounds.

Hoosier V can comfortably carry a party of 20 or more persons, take them out to sea, keep them dry and maintain a sea speed of better than 30 miles an hour indefinitely. Hoosier's power is a pair of 6 cylinder Sterling motors. Her owner is H. R. Duckwall of Miami and Indianapolis.

DESIGNED BY MR. FRED D. LAWLEY, AND BUILT BY
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Advertising Index will be found on page 148



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J. A. S. 43-7/16.
 For Marine Engines
 Price \$1.00

THIRTEEN YEARS IS "SWASTIKA'S" RECORD

All With FAY & BOWEN POWER



"SWASTIKA" is 42 ft. by 10 ft., cruiser type, built by Burger of Manitowoc, Wis., and launched May 20th, 1907. Her power was a Fay Bowen three-cylinder two-cycle No. 33 engine and for twelve years "SWASTIKA" continued to operate under that same machine.

"SWASTIKA" won the Chicago-Mackinac long distance race in 1907 and the Chicago-Green Bay long distance race in 1909.

In 1919 her present owner, Mr. U. J. Herrman of the Cort Theatre, Chicago, thought it was time to replace the two-cycle engine with a modern machine of the four-cycle type. He therefore installed a Fay & Bowen four-cylinder four-cycle "Model L-44" engine.

Here is what he has to say at the close of the 1919 season,—

"As to the motor, I guess about the best I can say is that if I was in the market tomorrow for another one I wouldn't even bother with looking around. I'd just send to your factory for the size that suited my purpose.

I have the reputation of going out when fishermen and steamboats stay in, so you can know we gave it some most thorough work-outs in all kinds of weather, on some very long runs and never found it wanting in any way at any time. It never gave us any trouble starting and handled perfectly. It developed the full horse-power and gave the boat the added speed you promised me and after a hard season's cruising which included one cruise that lasted from July 8th to Sept. 15th, to say nothing of several trips across Lake Michigan, was running as smooth and as quiet when we went out of commission as it did when we first installed it.

If you have any one in this section that is at all skeptical just send them to me."

(Signed) U. J. HERRMAN.

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104 Lake Street

Geneva, N. Y.

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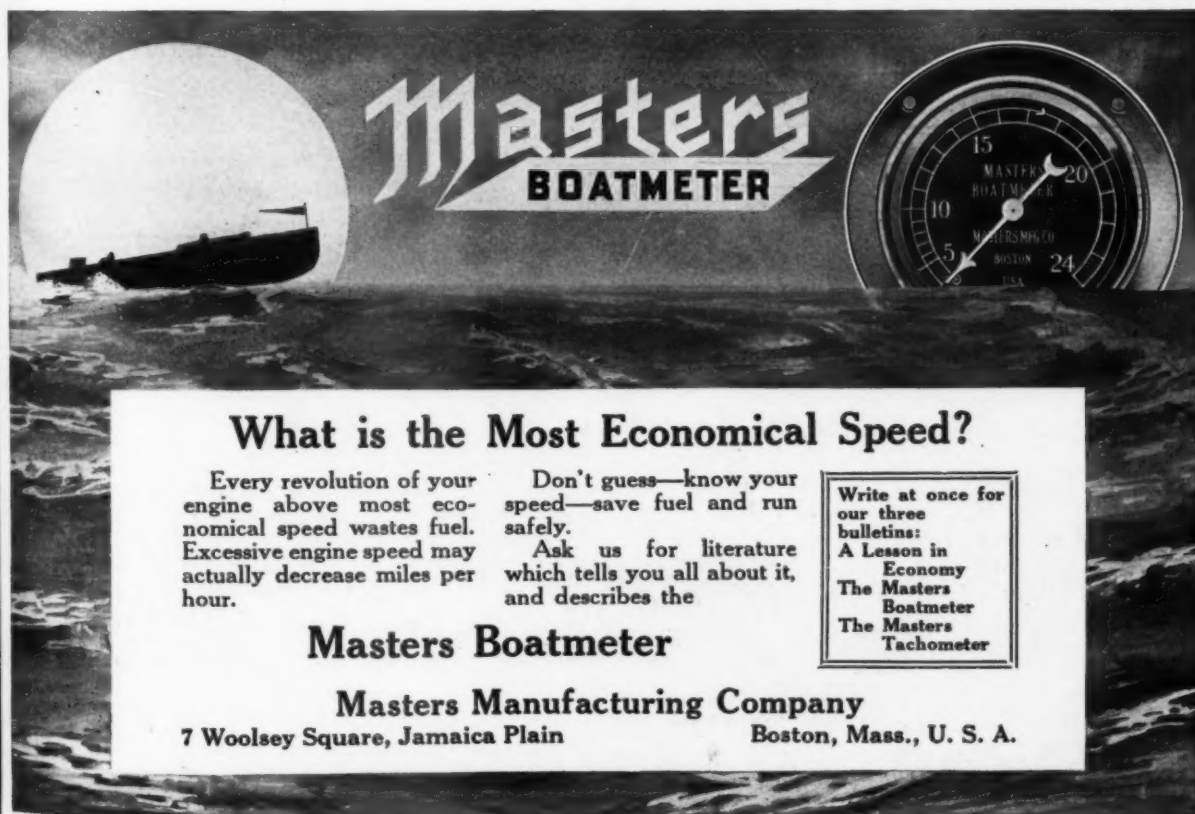
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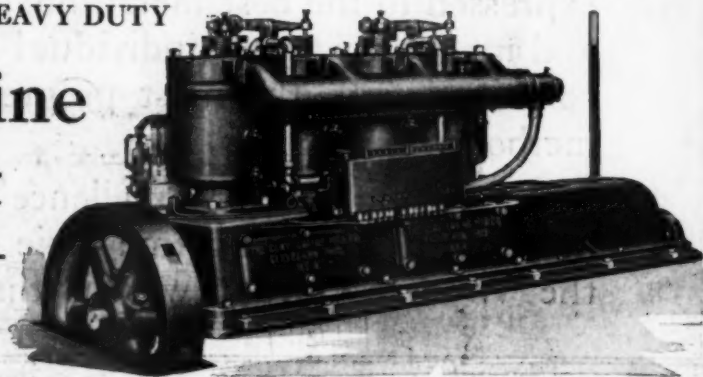
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